The HEALTH of the TEACHER

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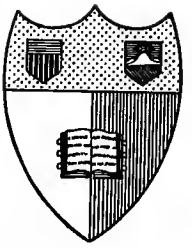

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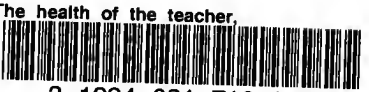
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THE HEALTH OF THE TEACHER

THE HEALTH OF THE TEACHER

BY

WILLIAM ESTABROOK CHANCELLOR

Author of "Our Schools," etc.

CHICAGO

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TO the students whom I have had for many summers in courses in hygiene for teachers, at various colleges, I dedicate this book in the hope that it may help some other teachers also to get well and to stay so. ∴ ∴

PREFACE

THE purpose of this book is to guide teachers in the care of their own health while teaching. The need for it arises from several sources. First, the occupation has very high rates both of deaths and of diseases. Second, teachers read too many school physiologies, which have in view the public needs of children and youth and which do not teach the whole truth for adults. Third, such books as have appeared for adult teachers have not been written by men with medical training and experience but by teachers of hygiene who have considered the subject pedagogically rather than medically. Fourth, every book so far issued associates public sanitation with personal hygiene, thereby adding to the sense of responsibility felt by the already burdened teacher. The present discussion is meant to be essentially different in its motives and purposes.

The aims of personal hygiene are these, viz:

1. To increase strength, health and efficiency for daily work.
2. To thwart and, if possible, overcome tendencies to diseases both self-originated and infectious.
3. To quicken and develop joy in being alive.
4. To postpone death.

In dealing with this subject, the case method followed herein has many advantages, of which the greatest is its reality, its truthfulness. By means of the final chapters, the index and the table of contents the advantage of the topical treatment is recovered. The ills of teachers are

not characteristically the common ills of humanity in the same relative proportions but mostly peculiar to the occupation. So true is this that any physician with a considerable practice among teachers assumes when seeing a new patient in his office for the first time that probably the trouble is one of a small definite list. From some ills, teachers almost never suffer.

This book is the outgrowth of early studies in physiology and hygiene and medical training followed by thirty years of educational experience. For its material, whether theoretical, clinical or consultative, it must speak for itself. The text is based upon systematic lecture courses given for many consecutive summers in the College of Wooster, Denison University, and the Cleveland School of Education. I sincerely hope that it will help its readers to get well and to keep well through more intelligent resistance to the physically destructive influences of next to the most severe of all learned occupations. Medicine alone has more trials, though not a higher death rate.

The inner purpose of the book is to help teachers maintain health despite the necessity to accommodate themselves often to seriously unhealthy surroundings and regimen. It is, however, well for us all to remember that there are other occupations with yet greater difficulties to be met and overcome such as medicine, nursing, home management on a farm and some lines of factory, store and office employment. Let us, therefore, try to endure with healthy cheerfulness what for the present perhaps we cannot change.

And let us not imagine that from the point of view of hygiene or of any other art or science, even the best of modern schoolhouses or the latest of modern school courses and programs is a finality. Mankind is at the beginning, not the end of the discovery of truth. But

even such truth as we now have is but narrowly distributed and but poorly utilized. In these pages, I have endeavored to present in untechnical, non-medical language as far as possible some of the most approved principles and practices of physicians and of hygienists for the maintenance and protection of the personal health of teachers.

In a period when from the world war we have all learned much regarding health and sanitation and when with the timely urgency of the United States Bureau of Education we are trying to improve the hygiene conditions for our children and youth, it is expedient for all of us who are teachers to bring our own health and strength up to high efficiency.

W. E. C.

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PART I

PRINCIPLES OF DIAGNOSIS AND CASES

"I seek to distinguish the patterns of life according to the natures of different men."

The Laws. bk. VII. Plato

THE HEALTH OF THE TEACHER

CHAPTER I

THE MODERN VIEW OF HEALTH

SUDDENLY, as with a start, the teachers of America have awakened to the truth that one very important subject concerning themselves has been virtually ignored *in toto*,— that of personal anatomy, physiology and hygiene. And even the teachers who have become awake suspect that what little they know is very, very little compared with the available scientific knowledge of the medical profession.

Every man, woman and child desires life and yet more life; desires overflowing life, for life is joy, power, self-realization, accomplishment and success, and brings approval from others. We delight in others who are well; and in being well ourselves. Life is surplus energy, more than we need for mere existence; life is radiant.

The health of the human cell is the key to life.

A living cell is the most marvellous of all things in Nature. It converts what it chooses from its environment into itself and thereby registers life. It chooses and rejects. It grows; it produces one or more cells like itself; it lives its time, whatever that may be, and dies. It thinks; it wills; doubtless, it feels; it certainly works. Cells build all animate creatures including man.

Scientists tell us that a normal human body contains three trillion cells,— 3,000,000,000,000; that the spinal cord alone contains four billion cells and the brain seven billion cells, making a total of eleven billion cells,— 11,-000,000,000,— in the main structure of the nervous system. Such numbers are fabulous and incomprehensible. This means that the direct nervous control requires three per cent of all the cells of the body. This, however, does not account for the vast number of nerve cells in the muscular and other tissues, doing a thousand things for us from noticing temperature to winking the eyelid.

Whether in a difficult world one seeks to recover health or simply to maintain it, the first requirement of all is to realize that *every cell in one's body has an appetite for material to renew and replace itself according to its nature* but that one may help or defeat these various cells in their natural and necessary interest in their own activities by anything and everything that one eats, breathes, drinks, does and endures. This is the secret of *health-consciousness.*

THE BLOOD STREAM

There flows in every man *a river of life and of death,* the blood-stream, at once a current of foods and a sewer of worn-out, decaying cells and tissues. In so far as it is a stream of nutriment, we have very large and active control of it; three successive hygienic meals, with pure water and enough fresh air, make a deal of difference as contrasted with a bad diet for even one day. But in so far as the blood current is full of the waste of the body, the case is very different. It may take weeks and even months to clean the sewer; it may prove impossible to do so, in which case death is inevitable from the defilement of the circulatory system. Important as food is, relatively to other health concerns it is emphasized in

common talk and in current periodicals and in books for general use, a thousand times too much.

Every cell in every human body has an instinct for health, for normal functioning.

This is the key also to the modern system of therapy in the cure of wounds,— to keep the tissue clean and to let it heal itself. The now famous Carrel-Dakin treatment as shown in the cure of hundreds of thousands of wounded men in the world-war is predicated upon this proposition that Nature means every man to get well and that *every cell knows its own normal and proper social relations with other cells.* The hostile germs that infect wounds, cause pus and develop gangrene must be cleaned away.

That man or woman who once looks out upon the world of his or her own body as through a new window full of light finds health and power by understanding the true meaning of the cell.

The various cells of the human body have various sizes and weights, natures and histories, and normal terms of life. We know now that it is not true that the entire human body is renewed once in seven years or once in seven months or once in seven weeks. Different organs, different systems, different parts of them, different persons of the various races, stocks, breeds, ages, sexes, living in different climates, doing different work, eating different foods,— some happy, some sad, some well, some ill,— have their different rates for cell-growth, life, and decay; all, however, within limits.

Once built, the enamel of the teeth, a cell-product but not in any sense cellular, never is replaced. Its wear is irretrievable save by mechanical dentistry. A silver plate may be fastened upon a solid osseous structure to stay there a score of years.

At the other extreme, true muscle breaks down and is

rebuilt very rapidly under exercise conditions,— in young manhood within forty-eight hours, and in childhood even more rapidly. No other tissue, however, completes the cycle of its cell life so rapidly as does the grey matter of the nervous system. This is one reason why the shattering of the nerves is so serious; it means that their instinct for self-renewal has been defeated. Any healthy, normal brain is eager to cure itself; the liver or the deltoid muscle of the upper arm is by no means so eager or so efficient.

Anyone may test the rates of renewal in one's own body. For example, how many days are required to grow an entirely new finger nail? In most persons, the nails grow faster upon the right hand than upon the left,— in the ratio of 5 to 4; and also in most persons, the nails of the forefingers grow most rapidly. For a boy of ten years, three weeks is an average period for a complete new nail upon the right forefinger; for a man of twenty-five four weeks; for a woman of the same years, the renewal is one-tenth faster.

In some persons, superficial cuts upon the skin heal fast. A clean cut an inch long and completely through the entire structure into the flesh may be healed and firm in ten days. A slow healing would be twice as long.

THE NORM

The original germ plasm has an architectural life setting out to realize an ideal, its *norm,* according to a particular grouping of ancestral traits,— that is, according to the elements in the original materials. This life made of whatever environment it had as helpful and agreeable a home as it could. It was intelligent enough to place its cells and to organize its bones here, nerves there, hair, skin, teeth, muscles, internal organs and all else accord-

ing to the proper fashion of each. In most cases, with better materials and less interfered with, the life architect would have made a much better job of it.

A very positive principle of personal hygiene follows from this truth: "Hands off," let Nature have her way, "physiological rest."

There is a famous diagnostician and consultant in Cleveland, Ohio, of whom it has been truthfully said a thousand times, "Yes, we called him in, and he went over the patient, said 'H'm,' and took up his bag to depart. Then we asked,—'What shall we do next?' and he replied, 'Do! Why, nothing. Can't you see that the patient is already getting well? Let him alone. Let him sleep. Good day!'"

What is the biological significance of this "physiological rest," but this — that non-interference, together with cleanliness, the right food and plenty of quiet gives Nature the opportunity to do what she understands far, far better than any human mind possibly can?

Every woman should remember what Adelina Patti said was the secret of her fresh voice in advanced age,— "At least once a month, I go to bed and stay there quiet and happy for thirty-six hours."

Holy Mother Earth! Sacred Mother Nature! When agitated American womanhood and hustling, feverish American manhood get the meaning of admiring love for Earth that feeds us and for Nature that breeds us, our womanhood and manhood both will prosper exceedingly. Though knowing nothing of modern science, the best of the ancient Greeks fathomed the secret of the proper relation of man to Nature,— which is trust, confidence, dependence. The glorious perfection of the human form as incomparably displayed in Greek art was matched by the finest of their men athletes and probably by their women also.

We should get ourselves into right relations with the bread and meat, with the sun and air and the night, with force and electricity and time, with the fields and the cattle, by all of which we live. Any other view of the universe is that of unintelligent barbarians. Before we get through reforming American education, we shall discover that much of our practice is unnatural and barbarous,— in keeping with Huns and other mechanical outlaws from true civilization rather than with the wise.

As the cells build up the organs from their own inner principles, so the body as a whole has its own inner principles, its habits and traits and ideals. Only second in importance to the truth that every cell has a life of its own and may and should be depended upon to live aright is the truth that *the body of itself understands how to do a wonderful variety of actions wisely.* It has taken man until these last few years to discover the true functions of the ductless glands in co-ordinating the whole man. Explaining these ductless glands belongs rather to physiology and to anatomy than to hygiene, and reference may be made here only to the operations of three of these sets of glands for the illumination of personal health-control.

The human body has for its important systems these, viz.—

1. Nervous.
2. Alimentary.
3. Circulatory,— blood and lymph.
4. Muscular.
5. Osseous.
6. Respiratory.

THE DUCTLESS GLANDS

Until the past few years, it was more or less of a mystery how these various systems were so wonderfully

co-ordinated and co-operative. The discoveries made have been quite as illuminating as the discovery of the circulation of the blood with the exact functioning of the heart, not so much as a pump but rather as a governor or regulator. The discoveries of interest here concern the thyroid glands, the suprarenal glands, and the pituitary glands.

Growth depends upon the proper activity of the thyroid gland. The child with too small a thyroid or one too sluggish fails to grow as if from what we used to call "sheer inanition." What is needed is that from time to time, there shall be released from this ductless gland its secretion "thyroidin" to stir up the cells to increase their number. But the child with too large or active thyroid glands is restless and over-excited, growing tall but thin.

Even in adult life, one needs vital but not too active thyroid glands. Tight collars, over-dressed throats, too much use of the voice, cramping of the throat, severe cold as from wind upon an exposed chest and throat — each of these conditions is bad for the thyroid and therefore for all growth and for all renewal of tissue. It is not necessary for the health that thyroidin shall always be present in the bloodstream, but it is necessary that its presence there shall be recurrent and periodic. And properly developed and functioning thyroid glands attend to the needs of health and growth in just this way.

Exopthalmic goitre, of which the external symptoms are a swollen throat and bulging eyes, is the direct and now familiar result of errant thyroid glands. Dwarfism, cretonism, gigantism and several other abnormalities of size and of functioning are now known to be due to these same glands.

The suprarenal glands determine the physical processes and stages of our emotions. Anger, fear, hate, eloquence, ecstasy, hysteria, and other such high-wrought

states are due to the activities of these glands. From the physical point of view, in the main, a cold, quiet, reticent nature is only the evidence of inactive suprarenal glands. A glowing enthusiasm followed by equal depression is the evidence of perhaps too active release of adrenalin into the bloodstream.

A teacher who meets seven classes a day and teaches each " for all he is worth " wears out accordingly. Clinical tests show that a normal adult requires twenty minutes to steam up from the effects of a release of adrenalin and more than an hour to cool down — which means to get the adrenalin back out of the blood. He should have at least an hour of comparative quiet before being excited again.

Every modern physician knows that four agitations in an entire day of twenty-four hours, perhaps two between breakfast and the noon meal, one in the afternoon and one in the evening, —constitute the maximum that a healthy man can stand and remain healthy day in and day out for years. " Too much excitement " means too many doses of adrenalin. It is what causes the exhausted school teacher to drag through her Fridays. It sends many an actress to the sanitarium. It has persuaded many a lawyer to " take to drink," which stupefies.

Sluggish or inert adrenal glands cause and are caused by a monotonous life. A person so afflicted drags a dreary round of days. How to rectify a bad adrenal condition does not come deep within the ranges of hygiene but a few suggestions may prove profitable.

For excessive activity of the suprarenal glands, one should substitute cereal protein for meat protein; avoid animated crowds and groups; read light or humorous literature; take easy outdoor exercise (no automobile vibrations); drink milk and water, and nothing else and cut down on sugar.

For inactivity, the opposite courses are indicated. Meats seem to stimulate all the ductless glands. Conversation, public speech, social relations, serious reading, hard exercise such as horseback riding, tea, coffee, chocolate, the alcoholic stimulants in their first impression and sugar, one and all stir up these glands, especially the suprarenals.

Contrary to the general supposition, these glands just above the kidneys have no more to do with them than with any other organs. Nature found the location convenient. Adrenalin affects powerfully first the heart and solar plexus nerves and then the sympathetic nervous system. Blushing, mental confusion, sex-excitement, noisiness, boasting, and many other such manifestations are caused by, accompany, or result from activities of the suprarenal glands.

FREE ADVICE TO TEACHERS

It so happens that teachers display many symptoms of unusual and unfavorable adrenalin disturbance. In consequence, those who ignorantly give advice to individual teachers imperil them still further. So much general and free advice comes to teachers, and teachers are so serious and so desirous to improve that many experiments upon them follow, and, of course, with but few exceptions they result unfavorably.

Among the more common health hints to teachers are these, viz.—

1. More exercise.
2. Social evenings.
3. Church or other activities.
4. Travel.

Now all of these may perhaps be good for a person with a "torpid liver," which diagnosis sometimes is a

mistake for a deficiency in the suprarenal glands; but any one of them may prove highly injurious to a person already suffering from excessive frequency and amount of released adrenalin.

As for the pituitary gland, at the base of the brain, we know that a deficiency of its secretion causes one to develop thin, blue flesh and fat and to be nervously weak, while an excess of its secretion causes thick, red flesh and fat and high passions.

THE NEW BIOCHEMISTRY

The modern view, therefore, of the hygiene of the individual proceeds from increased knowledge of and respect for the particular cells charged with characteristic functions and from new knowledge relating to the coordination and working together of all cells, tissues, organs, systems through the activities of the ductless glands. It is not that the old knowledge of the chemical actions of digestion, assimilation, metabolism, of the processes of cells, neurons, ganglions, efferent and afferent nerves, or of the pulse and of respiration and much of the other physiology of a quarter of a century ago has been superseded because it is false. It is that the old knowledge has been supplemented by much new knowledge and that truths concerning health have taken on new values.

Starting from two sources, the sperm and the ovum, one being $\frac{1}{600}$ in. or less in diameter, the other $\frac{1}{150}$ in., the human being finally attains at forty or fifty years of age a height of (say) 68 inches, a chest circumference of 36 inches, and a weight of 155 pounds,— all under law and reason. The soul or mind (considered as "intellect" or "spirit") appears to be a visitor in a living body perfectly able to take care of itself,— a body that ap-

pears rather to be victimized than to be helped by the visitor, who may foolishly try to keep it awake too many hours, or to feed it too much, or to subject it to cold or to excitement, or even to stimulate its appetites and instincts unnaturally by drugs or by external pressures or by deliberate imaginings. All this incredibly vast growth has been organized by the relatively few, so few cells in the parent-germ plasm. The principle holds as to the most serious situations, such as the attacks of the typhoid germ upon Peyer's Patches in the bowel; recovery from the tearings of childbirth; and wounds to lungs or stomach from bullets and shells in battle. In some, healing is rapid; in others, it is slow. Every organ and system has its own rate but within time limits. A wound that does not get well within a maximum time-limit is unlikely to get well at all. This is true of many a hernia and also of many a white tubercular patch in the lungs or in the hips.

Surgeons have succeeded in grafting bone into place; they transfer muscles and skin freely; they build new jaws. Some limits to these miracles will be found; but there seems as yet to be no limit within the possibilities of this great principle of Nature working in man as in every other animal that for practical purposes *every cell has a mind of its own.*

Here flows the blood stream. The liver appropriates what it needs and makes liver tissue; it does not make brain tissue or when sane, fat or connective tissue. The boy of nineteen gradually stops increasing the spinal column cartilage and bone because his spinal cord like a good architect silently determines,—"This is enough."

Such is the philosophy of the new biochemistry that is reconciling chemistry and biology and giving to man a new interpretation of himself.

CHAPTER II

THE INSTINCT TO BE WELL

SOMESTHESIA is the feeling that one has regarding the state of one's body, and is the proper expression of the instinct of self-preservation, of the "urge to be well." In some persons, the feeling is absent until positive pain sets in. Mostly the persons who are markedly deficient in somesthesia are of the ideomotor and sinewy motor temperaments,— the persons who are driven by external ideas or by internal desires of a mainly psychical character. Some of those who are deficient in somesthesia, however, are of the reflective sedentary type and mastered by internal ideas,— central images or reasonings. By some, it is contended that the absence of somesthesia is the direct cause of the invalidism that seems to characterize so many persons of these temperaments, and that the activity of their somesthesia is what makes the muscular motor and the vital corpulent enviable pictures of health.

It has even been gravely proposed that in every bedroom of the land beneath the embroidered motto,—"He giveth His beloved sleep,"— should be posted a big card with these words in red ink,—"How is your somesthesia today?"

It is, however, possible to have an undue interest in one's bodily feelings and because of such interest to be made ill from worry regarding one's health. Just as there are many who pay no regard whatever to their states of health and to their present tendencies up or down in

the health scale, there are a few who make themselves sick with too much inquiry and thinking about their health. We should pursue here the safe middle course.

One person never thinks of his health until he has a headache or a pain in his foot or some other disturbance. Another person never forgets his feelings at all and is always recounting to others how well he feels or just what little aches and pains he has.

HEALTH AND PAIN

When one pauses, gets quiet and begins to think of the health matter, very often there is an unnecessary pressure of feeling perhaps about a tooth or a collar or a toe or a little pain, real enough but little, at some point or other inside or outside of the body; — a strained tendon, a sore muscle, a tired out eye, may be its location. When health and energy run steady and strong, we endure, even ignore many pains. When we are excited or hard driven, we suppress all pains and aches unless they become so extraordinary as to defeat the will to proceed in action. Kinesthesia (delight in action) is the direct destroyer of somesthesia (delight to be alive). Most teachers are too kinesthesiac.

Many and many a time, teachers get up from bed with headaches or other pains, which grow worse rather than better until they get to school; then and there, they are forgotten; and the sufferers feel that they have triumphed over their weak bodies. Sometimes, the pains or aches become worse after school; but sometimes they have been effectively killed off. The explanation lies in the effect of adrenalin from the suprarenal glands upon the blood, the heart, the general tissues and especially upon the brain and other nerves. The former sufferer feels triumphant; — his mind and will (some persons think that they can

discern one from the other!) have conquered his body.

In ninety-nine cases out of a hundred, when this kinesthesia defeats the somesthesia, the body consciousness, in this fashion, the man pays back double and more that very evening and night. The safe rule after defeating, perhaps necessarily (?), one's physical conscience for several hours is at the first opportunity to take a bath, drink a lot of water, eat an orange, and go to bed, even in daytime.

Conquering pain by getting up an excitement is all of a piece with the miserable habit that so many semi-invalids have of ignoring the calls of nature to empty the bladder or the bowels, from which several positive diseases and various ruptures may and often do result.

All forms of autointoxication, all manner of self-originated diseases are due to quieting the voice of one's body-life.

The troubles due to over-interest in one's somesthesia are of a different order,— laziness, epicurism, fussiness, indifference to duty, blindness to ideals, "gross" materialism, sometimes particular vices, excessive selfishness. One may give too serious consideration to one's somesthesia or instinct to get well and to stay so; for example, fear to go outdoors in a rain-storm because one is "nervously too tired" and may take cold, may keep one from sufficiently aerating one's blood to permit good metabolism and sound night's sleep.

THE BODY THERMOSTAT

Fortunately this instinct can be rationalized, for there are ways and instruments for determining whether or not one is really ill or becoming ill. Among these is the clinical thermometer, which is easy to operate and fairly reliable. For most persons, at most ages, with the correc-

tions indicated below, this table for observing the body temperature serves quite well, viz.—

96°	Get to bed and send for a physician. Take some stimulant immediately.
97°	Get to bed and send for a physician.
98°	Take some warm food and drink, or go for a brisk walk.
98.5°	Probably you are well.
99°	Live quietly; drink fresh water.
100°	Get to bed and send for a physician.
101°	Get to bed and send for a physician. Drink cold water. Put a cold compress on forehead or neck.

The body is a chemical laboratory whose output is life-and-death, force-and-pain, strength-and-weakness. It has come to pass that 98.5° registers the correct point for these chemical processes. Whether this particular point, 98.5° has been fixed by some such fact as that the animal which was to develop into man emerged from the primeval sea to live upon the land when the waters of that sea averaged 98.5° (as the waters of the oceans now average 52°) is but a brilliant conjecture of speculative science. But whether true or false, it so happens that most men are well at a body temperature taken under the tongue showing from 98.5° to 98.8° Fahrenheit.

This particular temperature is not absolutely accurate nor universally so. Indeed the temperature may be taken at various other points of the body, as under the armpits, where it runs 98, when the tongue temperature is 98.5. The average shown for healthy persons numbering tens of thousands of both sexes and all ages shows in truth a slightly higher temperature,—98.7. But there are several explanations for this slight variation from

the popularly known figure. One is that children's temperatures, which are included, run slightly higher than those of adults. 99° does not indicate a fever in a small boy who runs all day. In all races, as indeed of all warm-blooded creatures, the temperatures of the young are higher than those of the old. Another explanation is that the scientific average was taken by physicians; and their temperature records always run a little high because persons whom they are examining are generally somewhat excited and are breathing hard, which raises the body heat.

The temperatures of women as well as those of children run a little higher than those of men of the same ages and races.

The temperatures of persons of some races run higher than those of other races. The key to this is not meat-eating, as some incorrectly suppose, nor is it wholly in the extent of outdoor life or of physical exercise. It is not even in the metabolism, for those who get plenty of nourishment from their food do not run high temperatures. The key is not in the quality of the skin, especially as to the activity of the perspiration glands. It is not a matter of the body coefficient; slender persons do not have low coefficients and fat persons high coefficients. Nor is it in the balance of all these factors together. The temperature is not a direct function of the heart action, though there is a tendency to run a high temperature when the pulse quickens. Consequently, a high temperature and a low pulse constitute a positive dual symptom that may help a competent physician to diagnose such a case.

The Chinese run low temperatures as do also the Hindoos. The Italians run high temperatures; the Scotch likewise.

The key to the normal and slight variations of temperature as between races is the development of the liver.

The other elements noted above count perhaps a little, but only a little. When the liver is properly developed in its three functions and operating well, the body heat is kept at about 98.5° — a little lower in the morning and a little higher in the afternoon, especially shortly after the noon meal when there has been a considerable intake of sugar. In a well man, the variation may run daily from 98.2° at 4 A. M. to 98.9° at 2 P. M.; and in a well woman from 98.3° to 99°; each aged thirty to forty years old and being of English stock; outdoor temperature (say) 50° to 80°, though this makes but little difference except at the extremes of weather,— below zero and above blood heat.

It is sometimes said that death is certain when the temperature falls below 96° or climbs above 108°. Modern medicine knows better. There was a case of a typhoid patient who every day for four weeks ran a temperature above 105° and every day for ten days ran a temperature from 107° to 108.5° but who got well and lived long afterwards.

In order to "freeze to death," it is not necessary for the body to get below 32°, the freezing point upon the Fahrenheit scale; the human body cannot perform its normal processes when it drops in health from the external cold to 67°, which is its "freezing-point"; and it does not get well when its temperature runs for several days below 94°; indeed, below 96° for any considerable period of time is usually fatal.

Human life is a flame as of gases that burn into "mind" at a temperature within one or two degrees of 98.5°; varying much from which, the flame dies out. The flame of life is a marvel.

Life is indeed a marvel in many aspects. Perhaps none of these aspects is more astonishing at first thought than that 98° to 99° happens to be the temperature in health

of nearly all animals! and of most birds! At 98°, warm-blooded living things all united confront the earth.

Anyone does well to keep a clinical thermometer on hand and to use it whenever worried about one's health. It is certainly comforting to know that a headache with the temperature of 98.5° means that in all probability one is not "coming down" with the influenza or with any other disease. Such a headache has a local cause, eye-strain perhaps, or ear-strain, or a spinal fatigue.

Another good instrument for helping one to intellectualize and to rationalize the instinct of self-preservation is the blood pressure machine, which, however, happens to be expensive (costing $20 to $30, according to make) and to be somewhat technical in operation. Many public schools, however, are now equipped with this instrument; and any teacher can learn to operate it. Preferably, however, the blood pressure should be taken by a physician or a nurse or by some physiopsychologist familiar with the meaning of the figures recorded.

There was a case of a healthy young woman of Scotch ancestry in America who worried herself into distress painful to observe upon her face because someone had taken her blood pressure and found it to be "only 100." Her pulse, however, was 76, when standing, and her body coefficient 2.05; the whole state of her health was, therefore, apparently satisfactory. A little knowledge imparted to others may make them unnecessarily unhappy. Health is wholeness, and a single item of this statistical kind may be negligible.

CHAPTER III

DIFFERENTIAL DIAGNOSIS OF HEALTH CONDITIONS

THAT all diagnosis is differential everyone has heard and many appreciate. That we are now able to diagnose the several fevers that a century ago were all supposed to be one and the same is a triumph of modern medicine. Now we can tell apart typhoid and typhus; smallpox and varioloid; we have identified membranous croup as diphtheria of the pharynx and upper throat; we no longer confound paranoia with melancholia, the very idea seeming absurd. Much of the old darkness respecting diseases has passed away; the fog of ignorance has both lifted and thinned.

But now when we speak of differential diagnosis, we mean something far deeper than this discrimination between diseases and ailments. We mean discrimination between man and woman, between man and child; between man and man; woman and woman; child and child. We know now that no two typhoid cases are just alike; that no two persons have just the same stomach troubles; that every human being is a new congeries of forces, a new series of problems. We know even that the man of sixty years may present vitally different physiological problems from those of the man of twenty-five, and yet be substantially well. He may have quite a different temperament and considerably different tissues; as, of course, he may have and doubtless should have a very different view of life.

"Know thyself!" said Socrates, quoting several almost

as wise men as himself who came before him. But no one can know himself unless to a degree he knows others also. *Vice versa* also contains truth; no one can know others until to a considerable extent he knows himself.

In this knowledge of oneself and of others, what facts are most worth knowing, especially facts in respect to knowledge of the conduct of the physical life? The answer in full would be an encyclopedia of many sciences from anthropology to philology. But some points may well be dwelt upon.

The political world would perhaps like to have us forget our races, stocks and breeds and to allow ourselves only the classifications of 1. Americans, 2. Allies, 3. Neutrals, and 4. "Huns." It may even look upon ethnology and race-anthropology as decisive on the hypothesis that what the world needs is unity rather than concord, integration rather than harmony,— a proposition distinctly debatable. But human somatology has so much to reveal of importance to personal hygiene (as indeed to many other interests) that a few of its truths are insistent for utterance. The calipers and the tape measures, the weight scales, the blood pressure instruments and the sphygmograph prove by the millions of cases that heredity according to race, stock and breed runs true to form through thousands of years.

RACE NATURES

There are fourteen easily distinguishable breeds of humanity with notably different traits upon the British Isles, nine in France, eight in Germany, three in Sweden, five in Italy, twenty-two in Russia; and we Americans derive from one or another of these unmistakably. Some of these breeds have dominant traits against all others and prove this in the cases of hundreds of thousands of persons of greatly mixed ancestry in America. Politi-

this may be interesting but inconsequential; hygienically, it is of very great importance.

To describe many cases would exceed the permissible limits here; but a few are necessary.

In power to mark descendants, no race is stronger than the dark Pict, whose habitat for a thousand years or more was the east coast and southern border of Scotland. He is never vital corpulent or anemic sedentary; but generally muscular or sinewy motor, and occasionally ideomotor. He needs outdoor life. He has diseases according to his indoor confinement, to the climate of his American habitat, and to the fitness of his occupation to his physique. Though but one of the eight grandparents has been dark Pict, the child will almost always show the traits of this dominant breed.

Next in power to mark descendants is the Norman French strain to be found conspicuously in Normandy itself and well distributed in England. Many Americans show this strain. A man of the Norman French breed has many characteristics like the dark Pict; but the distinguishing traits are positive. The hands are very unlike; those of the Norman French are always long, slender, tapering, and every finger likewise. They are the hands of artists and skillful artisans,— no other breed has any such hands. But the Norman French prospers indoors when he does muscular work in fresh air. He has diseases accordingly. Yet many dark Picts (in popular terms the "brunette Scotch") teach school while the Norman French are too impatient and too desirous of perfection to be happy as school teachers. The dark Pict seldom has nervous prostration; the Norman French often displays it.

The Angle is much like the Norman French and seldom teaches school, being too impulsive and too resistant to reasoning.

But the Saxon, blond, stout, good-natured, loves to teach school. He is usually either vital corpulent or muscular motor.

His traits, however, are distinctly recessive. Exogamously married, he fails to mark his descendants strongly with his own traits. The calipers and the tape measure and the scales cannot tell the difference between the pure Saxon in Germany, in England or in America, of whom there are many millions, for the Saxons are domestic; Saxon men and women are natural affinities for persons of other stocks; and they have large families. Dark Pict, Norman French and Angle all delight in consorts of other breeds; and especially from the Saxons, for the sufficient reason that the Saxon is complacent and healthy and cheerful, a good husband and a better wife. Hence arose the Anglo-Saxon, who even in England is not numerous but who has served to symbolize not a race but a nation and the several peoples and countries dominated by this nation, in the etymological signification of that term, "common birth."

The somatologist finds in America evidence that not less than forty different European races, stocks and breeds are represented in our population. In teaching, one finds conspicuously, east and west, these, viz.—

1. Saxons.
2. Scotch-Irish (that is, "dark Pict-Saxons").
3. Pure blond Kelts (from Ireland).
4. Pure dark Kelts (from Ireland and Wales).
5. Anglo-Saxons.
6. Dark Picts.
7. Russian Jews.
8. Danes, Frisians, Jutes from England (somatologically the same).
9. The Black British (from middle England).

Few teachers, very few, come from any other stocks with these exceptions, viz.—

1. Drawing and the arts attract into the profession a few Norman French.
2. Music draws in a few blond (Highland) Scotch.
3. The Alpine Swiss take to rural district school teaching here.
4. The Parisian French (a distinct breed) are drawn into certain specialties, such as trade, play-acting, music.

The external physical characteristics and the unmistakable psychical characteristics of all the races, stocks and breeds from which Americans derive can all be discerned by observers who will take the trouble to notice them systematically. These characteristics include health traits, tendencies to certain diseases, longevity, which differs greatly in the different stocks, and all such matters.

There are not less than two million persons of Italian blood in the American population; and there are five distinct ethnological varieties of Italians. At present, however, but few Italians ever teach school. Such as do teach become music and art specialists and kindergartners with here and there a professor in a college in some such lines as his own language and literature, art or architecture. For this, there are several causes. One is that an Italian who can sing prefers rather to sing than to teach singing. Another is that our Americans of Italian ancestry do not yet finish high school and then go to college; it has never been characteristic of Italians to undergo long, regular, socialized training.

But for the practical purposes of teacher hygiene, one does not need to inquire in all these lines and to observe their individual characteristics. Some races, stocks and breeds furnish no teachers or so few as to be negligible, such as the Magyars, the north coast Scotch, our own In-

dians, some peasant stocks of France and the British Isles, most Russian stocks, and Turks.

THE CEPHALIC INDEX

It is, however, profitable to observe the physical and psychical signs of the stocks, races and breeds whose representatives do teach in considerable numbers; and it is especially profitable to observe these signs in oneself. Of all those mentioned above, with the exception of the Alpine Swiss, the cephalic indexes indicate mesocephaly or dolichocephaly. The Alpine Swiss are highly brachycephalic. The cephalic index is found by dividing the distance between the ears taken one inch above the meatus (ear-opening) by distance of the longest axis, front to rear, wherever found (forehead to back head). The commonly accepted figures are these, viz.—

(Men) Dark Pict 80°; Angle 78°; Saxon 80°; Dane 77°; Dark Kelt 80°; Russian Jew 77°; Norman French 77°. Women of all races measure 2 points higher in their cephalic indexes than the men; that is, Dark Pict 82°; etc. Their heads are a little shorter and a little wider than those of men of the same blood.

There are eight other measures of some significance; viz.— 1. over forehead; 2. over middle head; 3. over back head; 4. under back head; 5. head circumference; 6. neck circumference; 7. distance between eyes from pupil to pupil.

In measuring 14,000 persons, the extremes were a college student male of twenty years, cephalic index 63, length of head 8¾ inches; woman college graduate index 66, head length 8½ inches, over middle head 11½ inches; boy of fourteen, cephalic index 118; college student, female, nineteen years old, index 88. A typical well-developed male Anglo-Saxon has these measurements, viz.—

1. cephalic index ..... 78°
2. head width ..... 5⅞ inches.
3. head length ..... 7½ inches.
4. over forehead ..... 14 inches.
5. over middlehead ..... 14½ inches.
6. over backhead ..... 14 inches.
7. under backhead ..... 8¾ inches.
8. neck circumference ..... 14 inches.
9. head circumference ..... 22¾ inches.

To pursue this subject into details extended to cover all the races that contribute many individuals to teaching would defeat the purpose in presenting this topic here, which is rather to illustrate the point that individuals in their health conditions differ according to race, than to enlarge upon ethnology.

It is a psychical sign of the dark Pict to be prudent and yet deeply emotional. To persons of other stocks, these qualities are irreconcilable, and yet every true Pict has them.

The Angle is impulsive and headstrong. The race displays an excessive tendency to breed mental defectives especially of the feeble-minded grade.

The Saxon is sentimental, domestic, complacent.

The Jute and the Dane love freedom and equality and delight in fighting for their individual rights. They have no desire to rule others, and they prefer death to submission to others.

The Irish dark Kelt is the personification of personal loyalty. He is emotional and imprudent.

Such are a few of the typical mental signs of the races that develop teachers.

Their illnesses as teachers because of their resistances to their environment follow. One race resists one way, another otherwise.

The common teacher-ailments are these, viz.—

1. Nervous troubles, including headaches.
2. Alimentary canal derangements.
3. Eye-strains.
4. Malnutrition.
5. Broken-down teeth.

The Angle as a teacher suffers from them all; the Saxon suffers but little from any of them; the Anglo-Saxon escapes usually the alimentary canal derangements and malnutrition. Though resistant, the dark Pict occasionally suffers from all of them, least often from alimentary canal derangements. The Norman French is especially victimized by nervous troubles. The Irish Kelt suffers from broken-down teeth. The Jute and Dane get off lightly.

With so many composite physiques to consider, it is helpful to remember that the dominant strain decade by decade overcomes the recessive in the individual. The Anglo-Saxon, as he grows old, loses the Saxon psychical and other traits, and becomes more and more Anglish (pure English). His blond hair turns dark.

THE VARIOUS TEMPERAMENTS

Next in dealing with hygiene, it is profitable to note the various temperaments, which cannot be understood without knowledge of races. Among men, there are five obviously different temperaments, viz.—

Ideo-motor.
Sinewy-motor.
Muscular-motor.
Vital corpulent.
Anemic sedentary.

Among women, the maternal instinct greatly modifies all these temperaments. Nine women in ten have this instinct actively at work. It is, however, strong only in

the muscular-motor and the vital corpulent. Among women, few survive to teach at fifty years of age unless they started to teach with the sinewy-motor, the muscular motor, or the vital corpulent temperament. The ideo-motor break down early; the vital corpulent dislike the work; and the anemic sedentary fail for want of physical strength to perform it.

Consequently, as soon as one knows that a woman teacher is "no longer young," it is safe to guess that she has either the sinewy motor or the muscular motor temperament. The maternal instinct makes the "womanly woman" and keeps her comparatively young. The "girlish woman" and the "premature old maid," greatly different though they are, nevertheless are alike in lacking an active maternal instinct. No greater mistake, however, can be made than to imagine that an unmarried woman teacher necessarily has lacked the maternal instinct.

The presence of an active maternal instinct greatly modifies the health. Motherly women who have never borne children do more hard work with less fatigue than "girlish women" and "old maids." Their illnesses differ accordingly. Motherly women do not often suffer from "woman's troubles." The woman teacher who is actually a mother,— wife or widow,— may have any of woman's troubles. Virgins, of course, have their characteristic troubles, which are often very serious in such as are non-maternal.

THE IDEO-MOTOR

With this highly important element of the maternal instinct properly allowed for, one may safely generalize to the extent of anticipating relatively large numbers of persons of the ideo-motor among such as fall victims to to the nervous troubles. By definition, *the ideo-motor are*

responsive to external stimuli without reflection, which permits self-protection. These persons make fine kindergartners, being notably alert to the needs and ways of children; in all higher grades, the very nature of their work endangers their nervous stability. Being careless of their own welfare, their teeth are allowed to fall away in condition; they eat and drink what they should not, being misled by the suggestions and actions of others. Being overstimulated, and really unable to endure the anxious conditions of upper grade and high school work, their whole physique suffers in ways shown by malnutrition, by stomach and bowel disorders, and otherwise.

It is an hypothesis worth considering that the ideo-motor temperament is the direct result of over-active suprarenal glands and of excessive loads of adrenalin in the blood and tissues. The ideo-motor, of course, never have strong muscles, though some few of them are able to retain and to develop active ones. The highly explosive character of the muscular tissue of the ideo-motor may be due in part to adrenalin and in part to the small bulk of muscle and the consequently relatively large amount of nervous matter in them.

Some diagnosticians think that the over-activity of the adrenalin glands exhausts the pituitary glands and prevents the making of fat.

Since ideo-motivity as a constitutional trait is so dangerous to health, persons of this temperament often ask whether temperament is unescapable fate. Are the ideo-motor congenitally doomed to their troubles?

In the first place, ideo-motivity, under a measure of rational objectives as life-aims, is not by any means undesirable. Such persons make the finest of aviators and are extraordinarily successful as actors and as actresses. Brought under rational control, ideo-motivity changes to a mental condition that usually develops the sinewy motor

temperament. Of course, however, the ideo-motor adult never changes so far as to become vital corpulent or muscular motor.

No physician ever anticipates the development of these impatient, often overworking and undereating and characteristically undersleeping persons into quiet caretakers of their own health or that of any one else. As mothers, they are not quiet watchers of their babies and children. They cannot develop the rational control that is almost essential to hygienic living under present-day, civilized conditions.

The ideo-motor often develop that entire diathesis discussed later in Chapter V, Case 2, where the alimentary canal is frail throughout.

THE SINEWY-MOTOR

The sinewy motor are found in all grades and kinds of schools. Theirs is the work-all-day temperament; they work with comparative ease but not rapidly except after long training. They place thoroughness before rapidity, and are generally prudent. They are not, however, notably well-nourished, nor are they full of the joy of living. They are characteristically serious and sometimes dour; most of the Scotch have this temperament.

The most common of all their ailments is rheumatism, both muscular and sciatic, though seldom inflammatory, to use the terms of a quarter of a century ago. The sinewy-motor persons tend to the uric acid diathesis. Theirs are the diseases of liver, kidneys and bladder. What disturbances they may have of the alimentary canal are usually temporary rather than chronic and are due to specific causes.

They are not characteristically careful of their health; and because they have a poor development of somesthesia,

they get tired out or overeat or suffer some other trouble from want of sufficient care and of active bodily warnings.

That interesting combination,—the Anglo-Saxon,—often is sinewy motor. He easily drifts into neurotic conditions, not unlike those of the ideo-motor invalid. Teaching in easy circumstances such as a college professorship, the sinewy motor man or woman in a few instances develops a physique with many of the characteristics of the muscular motor. But in general in these persons, the sense of duty is so strong that they remain, though strong, nevertheless thin and anxious.

THE MUSCULAR-MOTOR

The muscular motor enjoy teaching. They seem to get along well even against the hardships of grammar grade and first year high school classes, when adults are trying to defeat the barbarian instincts and traditions of the prepubertal and earliest pubertal epochs in the young who are no longer children yet are not quite youth. Even normal children from nine to fifteen years of age are much like morons, habit-minded, self-willed yet without rationality, pragmatic. The only temperament fully able to combat these is the muscular motor.

This temperament is at once strong and joyous. It represents a balance of all the powers. When persons of this temperament are ill, their troubles are usually not self-derived but the result of infections and contagions. Occasionally, a heart gets out of order or a kidney breaks down. They have both muscular and inflammatory rheumatism. They have bowel troubles from overeating, or from eating the wrong food. But the muscular motor have a distinctly competent somesthesia and seldom get all out of kilter at any time before they are fifty years

old. They show age, however, earlier than do the sinewy motor; nor are they equally long lived.

Most American teachers who are muscular motor derive in large part from Saxon, Dane, Jute, or Frisian ancestry. Some Irish Kelts are of this temperament, which is almost as numerously represented among Americans as the sinewy motor.

THE VITAL CORPULENT

Very few teachers are of the vital corpulent temperament, large, healthy, vigorous but not muscularly strong. Notwithstanding a high somesthesia, they easily become ill and often suffer from nervous affections. They are not long-lived. The only positions that they hold for years happily are administrative, for they are admirably adapted to a variety of duties. The dreary round of the same duties daily for years on years is not for them.

THE ANEMIC SEDENTARY

The anemic sedentary are not found in teaching except here and there in an institution of the higher learning. They can endure great and long intellectual effort but have no power to control others. They may be scientists and scholars. Often they live long. Of course, they are incurable semi-invalids requiring much care from personal physicians and giving much thought themselves to their health, such as it is. They undereat, undersleep, are constipated, are full of dull pains, have poor teeth and take but little exercise, methodically and dully at that. But often the anemic sedentary have remarkable minds. Their very temperament is probably the result of inferior ductless gland development. It is characteristic of them to wake up to work about nine o'clock in the evening. Often they do not get to bed until after midnight.

Once in a while a young man or woman of this temperament becomes a rural or village teacher after college or normal school graduation. Under twenty-five years of age, it is possible to reform this temperament considerably by dietetics and by bowel-regulation. More food and often more exercise do harm rather than good to persons of this temperament. They have low pulses, poor respiration and usually low blood pressure. Their eyesight and hearing are usually poor. Nevertheless, half the philosophers, poets, historians, essayists, scientists, novelists, and jurists of the world come of this temperament, the unhappy people pale with thought who write the record of every generation for posterity and judge mankind as the final arbiters of praise and blame. Fortunately, from the other temperaments come enough other persons to perform the same functions and thereby to relieve and to lighten the gloom and to give posterity a fair opportunity to get the rest of the truth.

THE MATERNAL TEMPERAMENT

The correction of all these temperaments by the maternal instinct manifesting itself in women teachers brings about significant hygienic differences. The chief physical characteristics are increased activity of the lymphatic glands, stronger pulse, more appetite for food, better sleep, and heightened somesthesia. The psychical characteristics are sympathy and joy. In consequence, under this stream of benignant influences, the ideo-motor and the sinewy women become healthier. Unfortunately for teaching, the same influences lead some of the muscular motor and of the vital corpulent out of the profession of teaching to become wives and mothers and nurses and to render different social service from training the young in school.

From this same source, we have the courtship problem of the young woman teacher, which is often so serious in school management. Though romantic love and the maternal instinct are by no means the same thing, they have a high coefficient of correlation in manifestation. According to general temperament, the young woman in love and engaged to marry a man who frequents her company has certain physical disturbances, while one whose lover is absent has psychical disturbances. Often, in either case, she becomes thin, loses appetite, tends to headaches and displays marked nervous instability. Sometimes, when of the ideo-motor temperament, she breaks down in health entirely and requires constant medical care. It is almost useless to urge hygienic courses of action, for the instinct overcomes reason.

The excitement known as courtship tends to late hours, sleeplessness, anger, fear, tears, laughter, all of which register themselves upon the health. Women frequently lose appetite for their meals and apply to their physicians for tonics to overcome the consequent depression and weakness.

The truth is that *Nature is now making one of her examinations.* The sinewy motor type, who characteristically display less maternal and romantic qualities than the muscular motor often must choose between courtship and proceeding as teachers. The ideo-motor are often very romantic but seldom also maternal. Courtship often leads them at once to drop out of teaching even long prior to actual marriage. A love-affair draws the vital corpulent woman out of teaching immediately. As for the anemic sedentary, any love-affair comes to them as a surprise; takes them unawares, unprepared and unfit; and produces irregular, idiosyncratic results.

Though men have no paternal instinct that corresponds with the maternal instinct in women, in some instances,

they are quite as seriously affected by courtship as are women of the same type of temperament. (What some generous observers style the "paternal instinct" in man is a composition of habits taught them by their mothers and of the pity that the noble strong feel for the beautiful weak.)

INDIVIDUALS AT VARIOUS AGES

Another set of facts worth observing by any one who desires to become a rational hygienist concerns age. The young think of all persons older than themselves as equally old, but in the processes of life one discovers that age is relative. The ninety-year old man looks upon the fifty-year old man as youthful and inexperienced; but when there is any centenarian nearby, the younger man looks up to him as having won a still greater triumph and hopes to come to an equal achievement. The sixty-year old man considers the man of thirty as quite inexperienced and wonders when he displays good judgment. And the man of thirty-five sees the man of twenty as scarcely upon the threshold of the palace of life. With women, the distinctions are even sharper.

Again, as one goes through life, one finds that he moves with his own generation. To oneself, one is always growing, always young, and, until strength breaks, always capable of improvement.

A physician received a call from a patient of ninety-two years, who said that he never felt better, that he was studying diligently every day, but that he was much troubled on his daily walk of two miles from inability to keep his wind. This man had completed the manuscript of an original book on popular religion for the age. Six days later, this patient died of dropsy. To avoid arteriosclerosis, the old gentleman had made errors of diet that led to the trouble; that is, at ninety-two years of age, he

was still ready to experiment upon himself to improve his health.

The general feeling that the world belongs to one's own age-equals leads to neglect of the truth that physically we are on the down grade at forty years. Here, however, temperament, race, environment and sex make very great differences. The blond Swede from the back country is physiologically as young at thirty years of age as the swart Italian of Naples at eighteen years of age.

Among women the first menstruation and the last delimit the period of fertility; usually, the number of years of fertility is about thirty-two. The climax of fecundity comes in the second quarter of this period. When physical puberty begins at thirteen years of age, the time of largest sex-vitality is from twenty-one years of age to thirty years. This happens to be the time of life when most women who teach do most of their teaching. More women are teachers at twenty-two years of age than at any other age. Relatively few women teach after thirty years of age and relatively few before twenty years of age. It must always be remembered that the average woman teaches only three years in all, from twenty-one to twenty-four years of age. City teaching staffs, of course, include relatively many women above fifty years of age; but two-thirds of all the schools of America contain just one room and more than half the teachers of America teach in one-room schoolhouses. Of the 575,000 teachers in America, the number of women above fifty years of age is a very small fraction. Teachers of thirty years' experience or more are rare; they are not one in twenty in any city in America. For the whole country, they make about one per cent of all teachers, while the men and women under twenty-four years of age make just fifty per cent.

The years make very great changes in health-conditions,

which are interesting to the historical hygienist; but practically one who deals with the personal hygiene of teachers should remember that his main business is with teachers who are within a few years of twenty-two in age. Even the men do not average much older than the women.

In general, the increasing years after full body-growth is completed slow down the pulse, weaken the heart action, raise the blood pressure, develop connective tissue in kidneys and liver, reduce the time rate throughout the body, increase the weight of the bones and reduce their breaking-strength, dull all the nerves, especially those of the periphery as in the teeth, in the finger tips, and in the skin, dull also taste, smell and hearing, develop far sight in the eyes and severely tighten the accommodation of the iris of the eye, increase the body coefficient until fifty years of age and then as automatically reduce it, shorten the length of the spinal column and render the spinal cord more liable to concussions, lessen the reaction to cold, thicken the nails and slow down their growth, making them also more brittle, weaken the hair follicles and leave the scalp a prey to dandruff and to baldness, lessen the perspiration, reduce the respirations both in number and depth, and after forty years of age diminish hunger and shorten the hours of sleep.

For all these degenerative changes, there are almost no physically advantageous compensations. Perhaps, pain is less shocking to the whole system of the aged than of the younger, which may be a slight advantage. There are less fears, and such as remain are less intense, though the fears that do survive become permanent, which may be seriously unfortunate.

Indeed for the compensations of advancing years, one must look to the psychical and social life.

In men, the period of sex-activity runs from puberty at fourteen or fifteen years of age to the end of sex-power,

which averages at fifty-six years of age, but may extend to seventy years or even older. In a general way, it may be said that natural seminal emissions occur most frequently in the second quarter of this period lasting perhaps forty-two years, from twenty-four to thirty-five years of age; and in men of the muscular motor and vital corpulent temperament occur several times a month, less frequently in men of other temperament. They are evidence of nothing whatever other than normal sex-vitality. Toward the end of the entire period, they occur months apart. In all healthy men, they are more frequent in the months of February, March and April than at any other time, and least frequent in or near August and December.

When the profession of teaching becomes well established, many men and women teachers will be husbands, wives and parents. It is an invincible fact that married men and women living with their consorts live longer and have better health and are, therefore, more fit to teach than maidens and bachelors, not that all schools should have married teachers only but that no schools of several teachers should be parentless and that mothers and fathers should be preferred for such one-room schools as cannot be consolidated into union schools. In order to get married persons into the schools as teachers, it will be necessary so to readjust both the work of the young unmarried men and women and so to develop in them rational personal hygiene that they will not as now quit teaching at the first opportunity, for one cause that young men and young women try teaching only to abandon it after a few years is that there is not at present a rational readjustment between the conditions environing the teacher himself or herself and the individual. As soon as young teachers really learn how to keep themselves healthy and happy in their work,— which, how-

ever, in some communities that will not on their part try to remedy unfair conditions will be impossible no matter how wise they may become,— then the numbers of men and women who remain in teaching after marriage will greatly increase.

Because of the great differences between young and old, those who are old when dealing with the young and giving advice to them should remember what youth really is, what its requirements are, and what its peculiar difficulties. Youth is sensitive, has a far more active metabolism, is unhappy unless learning new things, when without recreation and amusement becomes melancholy, believes in the "short hour, high pressure day," resents drudgery, feeds on variety, and nurses dreams.

THE TWO SEXES

Another set of considerations that one should have in mind in order to get into right relations for a correct personal hygiene has to do with sex. The physical differences between the sexes begin with the hair of the head and do not end until one reaches the very toes of the feet. There are hundreds of anatomical differences between males and females of the same stocks and breeds at the same physiological ages, most of them, however, of no hygienic significance. Among such as are of hygienic significance are these, viz.— the women have thinner skin, far more developed lymphatics, relatively more blood, lighter musculature, shorter legs and arms, and lighter bones, longer bodies relative to entire height, notably larger lower viscera, slightly smaller lungs, relatively smaller cerebrum and relatively larger cerebellum, much smaller hands and feet, higher arched instep, smaller teeth, tongue, pharynx and larynx, smaller circumference of neck, not to note in detail the sex-organs proper.

In general, woman is less locomotor than man, less active in combustion and more efficient in digestion and excretion, weaker, and quicker.

But these generalizations are true only within the limits of race, age, temperament and to an extent habitat and social environment. The dark Pict is comparatively slow in action; the Norman French quick. But a dark Pict girl is far quicker than an old Norman Frenchman.

Much of all this has been reduced to exact statistics, which are of no especial value in hygiene. A young woman of the Anglo-Saxon kind usually thinks about 150 thoughts per minute in the morning; or some 135,000 thoughts per waking day. A man of the same mixed breed thinks about 130 thoughts per minute; or 117,000 thoughts in a waking day of the same length. To be more exact, such a woman probably does average a longer sleeping night and a shorter working day than the man by at least half an hour. On this basis, the difference between the two at the same age is some 13,000 thoughts a day in favor of the woman. This indubitably explains, first, why a woman of eighteen years is mentally as old as a man of the same race and habitat at twenty years of age, and, second, why the woman requires at least half an hour more of sleep.

It is written in The Book of Common Sense of every wise woman not to take health advice from any man who is not her family physician or otherwise so self-alienated and yet desirous of her physical welfare as to be able to think of her bodily needs as a woman. For this reason, even fathers and brothers and husbands generally give perilous advice to women regarding hygiene.

The mensal periodicity of women, which is measured as being forty times as great as that of men, alone is enough to produce in them the need of a radically different regimen. The physiology of women differs from that of men

considerably, though, of course, not wholly; we are all human, all have nerves and feelings, digestion and many things else in common. It is a metaphysical guess that "function builds structure" and that "mind expresses itself in body." It is demonstrable physical truth that tears are readier to woman than to man and that women suffer more pain than do men. Their reactions are both quicker and more extensive than those of men. They have more and quicker recuperative power. It is true especially of young women that an apparently bad breakdown does not require nearly so long a period of recovery as a similar case in men. The necessities of the biological functions of child-bearing and child-nursing have made woman stronger in nerves, in digestion and otherwise than man,—popular opinion to the contrary notwithstanding. Strong nerves mean great capability of pain. Unfortunately for the race, economic man, indifferent to the welfare of posterity, throws upon many women correspondingly heavier toil.

In more than one American school, some woman teacher carries the real responsibility of direction and of discipline while some man draws the salary and writes the records as principal in name. In sheer muscle and in leverage of bones, woman is weaker than man; otherwise not.

CHAPTER IV

SPINAL CURVATURE

CASE I

GUESS what one may as to the sources of health and mind, all effort and resistance, however important and indeed essential in our lives, come at last to the spinal cord as the reservoir of vital energies. We may try to cheer ourselves up by cherishing the notion that "as our day, so shall our strength be," but in our hearts we all know that we can exhaust needlessly our vital reserves and prematurely wear out. Many teachers have come to me to ask what the matter is with teaching. They have headaches and indigestion and cannot sleep well; they have lost what is now styled "pep." Generally, they are ashamed to feel the way they do; they do not know what the trouble really is; and they do not like to talk about their cases with other teachers or with their friends.

Perhaps Case I, as I shall describe it, will convey as fully as any other that has been under my personal observation the truth that we need a very different hygiene from that which is common to the schools. Case I is that of a lady of middle age who had taught as a specialist the subject of physical culture in a city public school system for a considerable term of years. She was accustomed to give lessons also upon physiology and hygiene to classes, and to diagnose individuals regularly as part of her work. Intellectually, she was a very superior person. She had the esthetic sense also. Her only complaint about her health was that she often had pains in her back and in

her head. She was very enthusiastic about exercise and walked in the open air afternoons and holidays with fortitude and with a sense of well-doing.

That she was nervous and thin and excitable, she knew; but she attributed the condition to heredity and to the general circumstances of being a school teacher. She believed in exercise as the cure-all. The books said so; her superior officers said so; it was the common opinion that to be well one must take plenty of exercise outdoors, and if not outdoors, then indoors.

But when examined to discover the causes of the low body coefficient and of the pains and of the general notion that school teaching must be hard to do and to bear, Case 1 showed up two conditions, one of which was entirely unknown to herself. Her body coefficient was but 1.75. (Body coefficient is weight in pounds divided by height in inches, which for women of most physical types at 40 years of age should be from 2.10 to 2.70.) This teacher of physical culture who practised calisthenics with classes for five hours a day, who worked at gymnastics, who took long walks as often as possible, who believed in plenty of exercise, had three different spinal curvatures. Of course, no one of them was obvious to the observer who saw her going about the rooms of the schools or upon the streets. Her neck was carried well; and she stood straight, in truth, considerably too straight.

About thirty-five per cent. of women and twenty per cent. of men have at least one spinal curvature, but most spinal curvatures are not at the moment serious. Any spinal curvature may become serious. The curvature that is serious is making trouble in some positive way; for example, it may be causing pressures upon intraspinal nerves and thereby affecting the health of internal organs; or it may be harboring the germs of tuberculosis. In Case 1, the three spinal curvatures were causing re-

ferred pains, were increasing spinal shocks and were depriving certain internal organs of their normal blood and nervous supplies.

Referred pains are pains placed by the mind at some point in the body where they do not belong. This is due to the fact that nerves run out from the main trunk into branches and, as it were twigs, of little nerves; and a wound to a branch may set the twigs of another branch *qui vive* with pain by psychical mistake. By referred pains here, I mean that the pains which Case 1 suffered actually occurred in the spinal cord itself, or else at special points in the periphery of her body not suspected by the patient rather than where she thought they were. It takes a hundred times as much anatomy to understand this as is actually presented in the little text books on physiology that we have in our schools. By spinal shocks, I mean that every time this lady put her foot down, she had a slight jar of the entire spinal column due to these curvatures. A normal spine is like a spring of three bows; hers was like a staff, and a disjointed staff at that.

By the deprivation of blood supply to a certain organ is indicated the result of overpressure upon the nerve from the spinal cord that manages that organ.

What Case 1 needed was, first of all, to know that her spine was out of proper alignment and was making most of her troubles and that at her age the situation was irremediable; second, to change radically her notions respecting exercise for herself. Instead of walking home vigorously, of doing housework on her feet, and then after supper, of walking or at least sitting up for hours on hours in active conversation, she needed to stroll home very quietly on thick, soft rubber heels; then to lie down for an hour or so with her street clothing all off, flat on her back upon a springy, soft bed or couch; and to spend her evening in a very easy chair.

In her day's work, Case 1 needed to favor her back as much as she could in giving model lessons in the classes. She must know enough not herself to swing dumbbells and Indian clubs and other articles that add to the weight and shock of her poor, neglected and damaged spinal column. She must wear as light clothing as would serve, and keep weight off from her shoulders. In public places, she should take off her outer wrap. Otherwise, Case 1 would reach a few years later some one of several inevitable troubles,— she might be bent over like a hoop, as many fine old ladies are; or she might develop very serious diseases of the internal organs; or she might go insane, or become prematurely senile from increasing pain.

In point of truth, Case 1 suddenly changed to the plan indicated and in seven months showed a gain of fifteen pounds and a rosy, smiling face; but she was "doing less work" day by day. She will live, however, years and years longer, and the total of work to her credit at death will be far greater than if she had continued as before.

The second trouble, which Case 1 knew she had, was a technical one for which the remedy sought and prescribed was very fashionable until a few years ago. She had four bridges in her mouth set on as many roots of teeth; they had cost her $250, and she was not taking pains enough to keep them perfectly clean all the time. Plates are far better for a mouth so badly wrecked. (See Chapter 27.)

EXCESSIVE FAITH IN EXERCISE

From this Case, one may well learn that exercise is not the key to health; is not the most important of all hygienic prescriptions; is far from a cure-all. No one

can see and feel one's own back; the diagnosis of the spinal condition must be made by another, and it should be made by one who really knows and understands the spine. Often, a proper diagnosis involves the taking of X-ray photographs by an expert. Physical culture supervisors and teachers seldom know anything at all about the spine. It is a very common thing for an expert to go over a case where the school specialist has pronounced a spine first class and to find right there a bad curve; and once in awhile, a case comes along that is pronounced bad when in truth the spinal situation is excellent and the complaint is due to a different cause. A prominent bone along the column at the neck is an anatomical and harmless trait of some races. A spine may be straight where it should curve; which means that the straight spine really curves from the norm, and medically considered, constitutes an objectionable curvature.

Just now with the revived enthusiasm for military life, for army drill, for the tent out in the open, we are having a furore of interest in exercise for all in complete indifference to the truth that the men in khaki were a selected lot and that even among them were some who because of spinal curvatures (or some other deficiencies to be discussed later) were worse rather than better off from their drill with guns.

INDIVIDUAL DIAGNOSIS

The true key to hygiene, of course, is that employed by the medical profession; otherwise, there would be no medical profession. This key to every true profession is individual diagnosis. As every human mind is a different mind, as every law case is a different case, as every sinner who consults his minister presents special elements in his sinfulness, so every person who is not perfectly

well and never has any pain at all is a special case and requires individual diagnosis.

In consequence, the teacher will, first of all, make a study of his own case and get from real physicians and physiological experts assistance in diagnosing his own troubles; and, second, every person who assumes to be a teacher of physiology and hygiene for children and youth will begin to think that here at least is a field worth investigating evenings and holidays and vacation times lest the teacher shall be himself or herself a blind leader of the blind.

It used to be thought a symptom of poor sense to think much about one's insides, and the man or woman who wished to read medical books was regarded as queer or even worse; but in these times of the light of modern science, it is the other way about. All wise persons read medical books and journals and get from their physicians not only prescriptions for specific illnesses but also information along the lines of sanitation and hygiene.

In order that this chapter may not be left up in the air and give the impression of dealing too emphatically with a very few matters in a very wide field, allow me to add that spinal curvatures are not the sole cause of all troubles, nor is individual diagnosis the beginning, middle and end of personal hygiene. No one thing is sufficient, not even common sense, which often errs egregiously and fatally.

The purpose of this chapter has been to attack and destroy the too general custom of reliance upon exercise to secure and to maintain health. Incidentally, I have meant to present the very common case of spinal curvature causing damage to the health of individuals unaware of their defect.

CHAPTER V

IMPERFECT DIGESTION

CASE 2

THE second case to which I desire to direct attention is that of a woman who taught the modern languages in the same high school for nearly twenty years of physical exaltation alternating with wretchedness and who then, when her health gave out utterly, changed to another occupation to find herself two years later as well apparently as possible to one of her age and particular diathesis. This showed that the occupation was more than half the cause of her near-invalidism. As a teacher, she, was, however, more often sick and worse sick than necessary under the conditions.

Miss J. T. is a woman five feet four inches in height, light bones, small hands and feet, weight running about 110 pounds, fair-haired with light blue eyes. Her body coefficient, therefore, has been generally about 1.72, showing that on the average she has been 30 pounds under normal weight. By race, she is composed of Dane, Saxon, and Norman French in about equal proportions, with an obvious trace of Highland Scotch. Her mental abilities are distinctly above the average. She reads and speaks English, French, German, Spanish; knows Latin; plays the piano; sings, draws and paints; is an expert stenographer, typist and bookkeeper; conducts amateur theatricals; and is an excellent cook and housekeeper.

Contrary to the opinions of those who know nothing of anatomy, physiology and hygiene — opinions, that is,

generally expressed to her as well as about her "behind her back"—she has a strong, finely balanced nervous system. Nevertheless, she is not perfectly well and never will be because of the alimentary canal construction and tissue. The history of the case is so typical of many teachers as to be worth review.

OVERWORK AND UNDERFEEDING

At twelve years of age, J. T. developed a slight chorea, which lasted four years and ended her regular education in public school. This chorea affected her eyes, neck and shoulders. Outdoor life in the country, a later education by private teachers, the pubertal development, and changes of climate brought her at twenty-eight years of age to her first breakdown as a high school teacher. She was operated upon at that time for esophoria, both her eyes being skillfully button-holed to loosen and lengthen the internal ocular muscles of accommodation. Since then, she has had much less frequent headache. But for this operation, she could not have resumed her public work.

Yet the highly interesting and luminously significant result of this operation as a medical remedy was to uncover another and deeper stage of breakdown. She was now able to work with less daily headache and with fewer absences from school; but she developed occasional hysteria. These attacks came on Friday afternoons or Saturday mornings. Notwithstanding that the school authorities knew the main facts about her condition, she was teaching seven periods a day of 40 minutes each.

She had a most capricious appetite, eating too little generally, and that little being too light food. An egg at breakfast gave her nausea. Usually for this meal, she ate a slice of toast and butter, weak, hot coffee and a

saucer of cooked fruit such as peaches or baked apple. Her average intake was 1600 to 1800 calories per day, being but 60 per cent of an adequate supply. She ate only such meats as the white of chicken, the lean of lamb and dried beef, some days no meat at all.

She had other peculiarities characteristic of the defective, stringy, anemic alimentary canal type. She had tonsilitis every few weeks in bad weather in any season. The tonsils were too light to develop a heavy quinsy. Her skin was supersensitive, and would not tolerate woolen underwear or heavy cotton. She preferred silk but usually had to get along with linen or cotton of lightest texture. The surface of her body was always chilly. On the least provocation, she ran temperatures up to 101 degrees or down to 97.5 degrees. Though living on the seacoast and being a good swimmer, she seldom went in bathing. She could not get a satisfactory reaction as after-effect.

At thirty-seven years of age, came the second breakdown, which seemed to be a positive depressive melancholia, but was not. At this time, she was literally penniless, a condition due to a salary very low relatively to the high cost of living in the city, and to her assisting a needy kinswoman constantly. Cursed by the disposition to worry,— which is a pathological trait of this type,— she had good sense enough to take some part in social amusements, and to read light novels and current magazines; but not good sense enough to go to bed early as a rule. The breakdown induced a social reaction that led sympathizing friends and her physician to counsel her to acquiesce in the request by the school authorities for her resignation.

It is necessary to the understanding of this type to realize exactly the work that this teacher was asked to do daily for five days a week and forty weeks in the year.

1. Talk the modern languages in recitation with from twenty to forty-five pupils in the classroom at a time; seven periods.

2. Attend to school discipline.

3. Keep school records.

4. Correct papers for all these classes in the evening by artificial light.

5. Prepare amateur theatricals and other club programs.

6. Attend faculty meetings of from one to three hours' duration every two weeks.

7. Plan for college entrance examinations of pupils.

The voice work alone required of such a teacher would tear down a muscular man.

Change of occupation — six months of freedom from clock and calendar brought mental quiet, when this woman entered upon a line of work of considerably different character.

As a matter of personal hygiene, it is useless to advise such a woman to reduce her hours of instruction. No teacher can control this. To attempt to control it is insubordination, which, of course, means loss of position.

That this woman unconsciously realized her physical unfitness for normal living is shown by many of her own actions and by her conduct as a whole. She has refused to marry. She has retreated to the sidelines and to the rear in all teacher associations and activities. She has never done church work. She has never read serious books other than school texts and reference works. She has taken no part in the movement for woman suffrage.

Summarized, her traits are these, viz.—

1. Excessive physical activity followed by prolonged, irritable fatigue.

2. Timidity among strangers and the unfriendly.

3. Excessive self-concern with unwillingness to probe deeply into its causes.

4. Great dependence upon her medical advisers.

5. Undereating of proteins both cereal and animal and of fats and overeating of sugars, starches and fruit acids.

6. Insomnia; — sleeping but an hour or two at a stretch, with lying abed till ten or twelve o'clock frequently upon holidays.

7. Irregular attacks of hysteria.

8. Worry with irremediable inability to rationalize her life.

THE ALIMENTARY CANAL

The frail alimentary canal means, of course, not only poor appetite and poor digestion, but also poor and irregular excretions with too frequent micturition. Whether the spinal cord or the alimentary canal is the older system in the human body, it is certain that a failure of the one is quite as serious as the failure of the other. A human body can rack along with poor kidneys, with poor lungs, with a poor liver — with the frailest of muscles, with no teeth, with a skin in a fever of eczema,— even with an hypertrophied heart; but we live according to the grey matter of the nervous system and to the efficiency of the alimentary canal. In truth, the whole human body appears to be organized around and upon the alimentary canal by the nervous system.

What, then, is one to do who has a poor interior for one's digestive tract from pharynx to colon? Especially what is the woman teacher to do?

The first thing of all to do,— the absolutely necessary, the one indispensable essential is to form the habit of going to bed early,— which means going to bed before one is very tired and in the assurance that one will have

ample time to rest before getting up,— rest, be it said, not continuous sleep, for it is assumed that a person of this type knows that sleep will not come to stay all night. Make a short day of it. Good sleepers can stand long days and short nights. *A woman teacher of this type should be in bed at least eleven hours before the time she is due in school the next day.* When school opens at 8:30 A. M., the time to go to bed is 9:30 P. M. or earlier.

More sleep is essential.— The human body has many periodicities, some of which are not under rational control; not the least of these is the periodicity known as waking and sleeping. These should alternate as follows, viz.—

Within every twenty-four hours. 1. A long sleep; 2. A long waking; 3. A short sleep; 4. A short waking.

The ideal clock program for one of this frail alimentary canal type is as follows, viz.—

10 P. M. to 6 A. M., sleep.
6 A. M. to 4 P. M., waking.
4 P. M. to 5 P. M., sleep.
5 P. M. to 10 P. M., waking.

All women who teach need to sleep every night before a teaching day not less than nine hours as an irreducible minimum.

One who can sleep one hour in the afternoon can consider it safe to cut down the sleep at night two hours; one who can sleep two hours in the afternoon can cut down the sleep at night four hours. Right here the rule ceases. Three hours from 4 P. M. to 7 P. M. and then three from 2 A. M. to 5 A. M. are not enough. We Americans are the only people on earth who take all our sleep in one period.

Dietetics.— The second requirement for a person of this type is to discover and adhere to a proper and an adequate diet. There is no perfect diet for all persons of

even one type. Just as the mind learns to deal familiarly with a particular set and body of principles and ideas and facts, so the alimentary canal and the tissues learn to deal successfully with a particular set and body of foods, drinks and condiments. There must, however, be an apportionment within limitations for proteins, fats, starches and fruit acids. It is altogether wrong to eat too little. As the common error of the sinewy motor is to eat too much meat and to carry overloads of proteins, crowding the liver and kidneys with uric acid, so it is the common error of these "nervous" motor persons to undereat of proteins. In many instances, putting such persons on mutton, prescribing lean and fat together, on good bread with plenty of butter and of peanut butter larded on, and on cabbage and cauliflower to expand their alimentary tract, seems like half of the cure. The mineral contents of tomatoes and of white potatoes thoroughly cooked are good for most of these teachers.

A person of this type must not eat between meals, though in some cases four meals a day seem to help. Let this fourth meal be good ice cream and crackers at 4 P. M., not "a late supper."

OTHER MODES OF RELIEF

There are other helps. One is to cease using the vocal organs at home, talking as little as politeness permits. Another is to take a daily neutral or warm bath before going to bed,—90° to 100° Fahrenheit. Another is to exercise every muscle every day at least a little. The alimentary canal is strengthened by quiet, strong twistings and bendings of the trunk. The neck is helped by special exercises daily.

A person of this type who continues to neglect any seri-

ous dental trouble, whether decay or impacted teeth (often hidden in the jaw) or pyorrhea, never gets well. The teeth must be made clean and easy in the mouth, and the gums hardened by plenty of brushing. Not infrequently a person of this type has not only hypertrophied tonsils but adenoids also. When such is the case, surgical relief should be had. This patient, however, had no adenoidal troubles; and her tonsils were not usually swollen. Undoubtedly if her tonsils had been removed at twelve years of age or so, she would have grown into a stronger woman. But the tonsilitis of her later years was only one symptom of the whole alimentary canal inferiority.

Anyone whose condition resembles that of this Case 2 should wear in winter very warm outer garments and overshoes whenever the ground is wet or cold. Much physical exercise is not indicated. The best of all is a half hour of outdoor walking rapidly alone. It is bad for such a person to be always with others listening or talking. While the sensorium may be fine (as in Case 2 here) the supply of fresh good blood is poor, and the worn out tissues are replenished but slowly.

There is some truth in the opinion that "if such a person had less brains, she would have better health." The mind is robbing the body. The remedy is to use the "brains" less when out of the schoolroom.

School authorities dealing with these anemic alimentary canal cases of general physical impoverishment should remember that it is cruel to encourage them to work harder and cruel to advise them to leave the profession, for they are very sensitive, indeed oversensitive, too conscientious generally. It is, however, true notwithstanding that an alimentary canal muscularly weak in its peristalsis and vermicular action and chemically weak in its digestive juices does disqualify one from teaching, pleading, preaching or healing joyfully and vitally. Such a person should

be a gardener or a poultry man, a clerk in office, store or bank, or an artist or musician. A person of this diathesis does better in kindergarten or low primary grade than anywhere else in teaching. Worst of all for them,— worse than college instructing, far worse than supervising art or music,— is teaching in the grammar grades.

Whether one of this diathesis can completely overhaul the alimentary canal and make it effective and strong by two or three years of outdoor life in the woods and by the sea in alternation, is doubtful; moreover, but few teachers have any such opportunity. For Case 2, the only practical choice is the dilemma,— get into some other kind of work or radically change the daily program. One course takes a sudden resolution; the other takes persistence in the determination to overcome the world and oneself by scientific health control. Force in action and strength of will are, however, moral qualities seldom to be found in these victims of heredity and of family errors in the early regimen.

At forty-one years of age, this woman changed to a third occupation, with a great variety of duties but free from all supervision by other persons temperamentally unlike herself, and when last heard from, a year later, was in such excellent health as to surprise all her friends, especially her medical advisers. Numerous executive interests with travel and no heavy responsibilities are clearly desirable for women of this diathesis.

CHAPTER VI

NERVOUS WRECKAGE

CASE 3

CASE 3 is that of a man regarding whom worse errors by physicians, friends and other counsellors could not possibly have been made without killing him. Twice he was turned over as dead,— once at twenty-five years of age, and a second time at forty years. The case has a history of two important epochs only, and is otherwise uninteresting. The management of this case a generation ago erred sincerely for want of modern knowledge, the management of the later wreckage not many years ago erred for want of personal attention to all the factors. In each instance, the recoveries were due to superior care and to surgery. The Case himself reports that his present life is due to the triumphs of surgery.

Most of the illnesses of teachers are remediable by medical care, but were one to allow the impression to be formed strongly in the first part of this text that hygiene and medicine will cure all troubles, the whole effect of this discussion would be so false as to be dangerous. *In some instances, the only certain remedy is surgery.* Medicine may give relief; the knife cures.

Case 3 is a man of English-Welsh stock, by nature energetic and persistent, a combination by no means favorable to health. He was an athlete, ate too much meat, took too much exercise indoors and out,— gymnastics, driving, walking, etc.,— taught too many hours a day, had too many professional and social engagements; and

became the victim of autointoxication in the worst form. He was "bumped out" of the schoolroom by a case of pink eye then epidemic, which kept him awake for fourteen days, of course, only because of the combination of pain with excessive toxic poisoning. This patient lay in a coma for twenty-nine days in August; and the relatives waited those four weeks for the funeral. Nevertheless he came back to consciousness and for several years dragged out an existence unable to read, but by the help of his wife managing to hold small teaching positions one after another. He then came into the hands of an expert oculist who operated upon both eyes. Almost immediately thereafter his physical vigor returned. But he persisted in his errors of diet and of regimen.

The second collapse was due to the wearing out of the organs of excretion. Again, he fell into a coma which lasted several days; but static electricity was resorted to with immediate success. He recovered sufficiently to get on his feet; but again was only dragging out an existence when three surgeons took him in hand. One opened up his nasal passages to give him more air, another pulled out a dozen sound teeth because their gums were infected with pyorrhea; and a third cleaned his bladder and kidneys and liver, in several operations, of calculi and stone. These remedies took several years. Since then, completely changing his diet and regimen, he has never had any other illness than is inevitable when the liver and kidneys have been overworked and partly destroyed in earlier life. What he has left in the way of interior organs work well.

The second collapse, however, was not due wholly to errors of diet but in part to a concussion of the spine at the point of exit and entry of the kidney nerves. Massage, pediatrics, and physiological rest have cured the spine at this point.

RESPONSIBILITY WITHOUT AUTHORITY

Case 3, which might be duplicated among women, illustrates several points. One is that for the good of their bodies teaching is altogether too interesting to some minds. This man was a zealot as a teacher and twice played out largely from that cause, which is no reason but a sin. Many teachers have the notion that it is their duty to carry the world upon their shoulders. This notion may be proper enough in a statesman in high office or in the religious reformer or prelate; but it is inappropriate in the teacher whose function, whether rightly or not, is socially a subordinate one. Teachers have no authority and no hearing from the public such as to justify any assumption that the responsibility for social progress rests upon them. Case 3 visited parents and even tried to influence higher school authorities until he made himself sick and thereby relieved the world of his importunities for change and betterment. This applies to him in both the self-destructive epochs of his life.

But there is much else also in this case. The patient ate almost exclusively bread, meat, milk and eggs; almost no vegetables; very little fruit; no candy. He drank chocolate to excess. He ate meat at almost every meal, — usually lean beef. According to his report, he ate meat as his main diet from infancy. Until taken in hand by modern surgeons and dietitians, he "couldn't remember a lunch, a dinner or a supper without meat."

A third defect in Case 3 was lack of sleep. His meat diet kept him alert and wakeful. He went to bed at twelve and arose at five, or at eleven to rise at four; and went promptly to work. Once a week, usually Saturday or Sunday afternoon, he took a long nap. Even after his first illness and recovery, he had great powers of exercise,— walked twenty miles at a stretch, or rode

horseback all afternoon. He complains that the present diet has cut down his physical strength; but the truth is that his present comparative weakness is due almost entirely to his former mode of life, which has injured him irrecoverably at many points and in many ways.

A fourth defect of Case 3 was inattention to his daily bowel movements and to daily bathing. He passed from constipation to diarrhea every few weeks; and sometimes failed even to take a weekly hot bath with soap lather. His bowels were no more sluggish, however, than was his skin. Similarly, he often neglected to brush his teeth twice a day. He was "a very busy man"; in the main, he was busy upon self-imposed tasks that might have been avoided. Sometimes he did not change his underwear for several days, night or day.

Such is the history of this case. Such is its explanation. But there are deeper causes than such as have been indicated. Case 3 is sinewy motor, long, strong, lean, eager, alert and ambitious. His nerves could scarcely be better. Able to digest anything, he did not learn until well into middle life what to eat. Until fifty years old, he did not know what it is to have a heart and a pair of lungs; he could run uphill without difficulty in these organs. He lacked what is called "common sense,"—which in this instance means somesthesia, the sense of the condition of all parts of his body. He neglected himself.

Teaching has many such enthusiasts. They sit up all night reading papers and drinking coffee, tea, or chocolate. They prepare long reports and hold long faculty meetings, ignorant that the long-continued sitting required to read the long report or to endure the long faculty discussions are directly injurious to all the organized tissues. It is very bad for the health to fail for hours at a stretch to move about and exercise the internal organs.

Case 3 would sit for hours on hours preparing his class lessons, reading, reading motionless. His excess in exercise did not, as he imagined, make up for progressive deterioration of most of his internal organs.

Fortunately for this man as well as for the human race generally, there is a marked social tendency to give to the old easier duties, though perhaps more responsibilities, than they ever carried in their young manhood or womanhood. Case 3 found in transfer from high school to university teaching, after some post-graduate years, rather late in life, a field called by himself and friends "more congenial" but seriously considered superior in but one important respect to his former activities,— less pressure from the external world, more freedom of internal choice. A field that would have seemed to him at twenty-five years of age painfully restricted proved at fifty years to be well adapted to his temperament and experience.

CHAPTER VII

IGNORANCE OF LUNG AND OTHER HYGIENE

CASES 4 AND 5

CASES 4 and 5 may well be considered together, since they illustrate the same point.

Case 4 was a young woman, bred in the country, vital in every ounce of her body,— a red Kelt, Irish at that. She was a class teacher until at only twenty-five years of age she was made supervising principal. An excellent singer, she was often called upon to lead public meetings at church and elsewhere. She had splendid energy, radiated goodwill, and displayed tact in all her school relations.

One afternoon in November, being the third month as supervising principal, with a heavy catarrhal cold and a racking cough, she went to her city school superintendent and complained that the office in the fine new school building had no heat and added that she had to sing the next evening in a big church gathering. The superintendent advised her to see her physician and to stay at home the next day. She saw her physician, who told her to go home and stay abed until he could call the next morning. But she did not stay abed. She did not cancel the singing engagement. Evening came and rain and sleet, but Case 4, putting on raincoat and overshoes, went to the church and sang. They took her home very ill. Six weeks later, she died of quick consumption.

Case 5 was a woman of forty-five years of age, who

had taught and managed a private school for many years. She was of Danish stock with a dark Pict strain,— of notably muscular physique. For a year her health had been failing; but she had never called or visited a physician in all her life, and she proposed to outbrave her inner sense of failing health. She took to drinking coffee,— as many as fifteen and even eighteen cups a day. Also, she acquired insomnia. Because her muscular strength remained and her appetite and hunger likewise, she thought that the condition would wear out and that she would soon feel better. One rainy day, she took a long walk and got very wet. Four days later, after eating a generous beefsteak, she was taken with the pneumonia spasm; and five days later, during which she explained to three physicians and two trained nurses, the foregoing facts, she became unconscious, dying in her tenth hour of that condition, despite oxygen and every other known and well-approved remedy.

In both cases, their lungs gave out.

In both cases, they rejoiced in hitherto "perfect health."

In both cases, they failed to read their premonitory symptoms.

In both cases, they raced to their deaths.

In both cases, they disregarded bad weather and developed infectious diseases whose germs, of course, they already carried.

In both cases, their minds were so wholly absorbed in their own duties as to be unable to think of themselves with the result that the world lost richly valuable lives.

The first of these cases exposed herself during her monthly sickness of menstruation. If she had stayed in bed those two bad days, and if she had learned then and there to care for her health, it is quite possible that she would never have developed tuberculosis. Eighty per

cent. of civilized human beings show upon post mortem autopsies that they had large or small areas of tubercular infection that had been healed by returning health. "Go to bed and get well" is the first of all hygiene rules.

The second case here died of pneumonia at the crisis of the menopause. Her age at death was forty-five years and one week. Five years later, a sister of this patient died at the age of forty-four years, eleven months and three weeks also at the crisis of the menopause from focal infections that had destroyed her heart and kidneys as working organs. She also was a teacher in private employment.

INTERWOVEN CAUSES

These three cases show of what high importance it is for women to regard their bodily conditions at the low ebbs of the menstrual period and of the cessation of menstruation.

Every case so far suggested is one of enslavement to teaching, social enslavement that in the end defeats its own motive to do all that one can for teaching.

But these are not all the facts to be observed in Cases 4 and 5 as warnings to others. The fair Irish girl of the buoyant spirit had seemed to eat enough to be amply strong to resist tubercular infection. But the truth was otherwise. She had overeaten of white bread, white potatoes, vegetables, fruit and candy, and undereaten of meat, eggs and milk. In addition, she took a lot of exercise; she was indeed very active; but she did not take all-around exercise. She walked, she sang, she did no trunk work; she went to bed late; and she wore tight corsets! Her splendid vitality was a delusion, for her blood stream did not carry enough phagocytes to defeat the tuberculosis germs. Her tissues were watery, she was a blooming lass, lovely to look upon, but she had not

been brought up outdoors as an Irish peasant, and there were no sea breezes in her blood. On the contrary, she had the city notion that her waist should be small; and she was ignorant of the rule to exercise every muscle internal and external every day.

The solid and apparently sound Danish woman with her wonderful qualities executive and pedagogical did indeed last twenty years longer than the other; but she died just as unnecessarily. Any person ought to know that a craving for fifteen cups of coffee a day indicates something seriously wrong in one's body. Two days before she had the pneumonia spasm, she had a terrible pain under her shoulder blades; but she told no one else, thinking that she had strained her back doing something, she did not remember what. We should teach in our schools the meanings of some of these striking and characteristic symptoms. A sharp, strong pain under the shoulder blades often forewarns of pneumonia. Going to bed at once and sending someone for a doctor will almost always prevent the pneumonia spasm. That prevented, the chances of recovery are 10 to 1. Experienced, the chances of recovery are only 1 to 1. If this woman had not worn tight corsets and had practiced lung exercises, pneumonia would probably not have developed.

Both these women were living in schoolroom dust. School teachers are peculiarly liable to lung diseases bebecause of dust. There is a higher rate of mortality from tuberculosis among school teachers than among stonecutters, whose high rate is due to their occupation. The reason for this is the insanitary condition of the schoolroom — lack of ventilation, overheating, lack of light — and the sedentary nature of the teacher's work.

The public school had to try out two other teachers for several months in each case before finding one to make a principal as good as Case 4 was; and two years

after Case 5 died, the private school closed its doors from failure to replace this woman who had run it successfully for many years. Early death is a heavy debit upon education.

Until recent years, every city and county school superintendent in the land might have recounted cases similar to these; but now while we are instituting systematic anthropometry and medical inspection in our schools for the children and youth, we are beginning also to proceed upon the theory that the teachers also should be supervised upon health lines and be glad of such supervision. For them, of course, it is provided by their own private physicians who report, upon necessity, to the public authorities; but we have nobly outgrown the old notion that a teacher in the care of the children of other persons has "the right" to be as ill or as weak as he or she wishes to be. We know that it is very much the duty of the public to protect itself by having all teachers regularly and frequently instructed in personal hygiene that they may be as well as possible and protected by knowledge from such unwise courses as these indicated in this chapter.

CHAPTER VIII

FATAL OVERWORK

CASE 6

CASE 6 is that of a man clearly of old Black British breed, heavy, cheerful, quiet, domestic, good. He was about forty years of age,—taught the last grade of grammar school and in the evening school. Summers, he farmed in the mountains for his health and pleasure. A joyous, genial soul, the last of all thoughts one would naturally have of him would have been death from "nervous exhaustion."

He stood about 5 feet 9 inches and weighed 290 pounds. He was the most popular of the many teachers in a large public school and also in the evening school. Foreigners (mostly Russians and Russian Jews) immensely admired him. His body coefficient, 4.2, was suggestive of probable weakness at some points to the medical mind. He ate but two meals a day,—a moderate breakfast of cereals, toast, egg, bacon or chop, coffee,—and a heavy dinner. His nutrition intake was large even for his weight, but his metabolism seemed perfect.

The trouble began with his election to an important post in the city teachers' association at the time of a great campaign for educational improvement through public appeals in the newspapers and in city politics. The first symptom of trouble was insomnia. The patient took walks regularly, his bowel movements were satisfactory, there was no albuminaria of the urine. But he could not sleep soundly all night. At midyear, he was promoted to

be a high school principal, but entered upon his duties with misgivings. Conditions were such that he retained his evening school classes. He had a wife of very quiet, helpful disposition upon whom he relied much. There were no children.

Case 6 left his home (three rooms in a boarding house) at seven-thirty o'clock in the morning; came home at four or five in the afternoon; left again at six-thirty and was home by ten-thirty almost always. He spent Sunday very quietly. Saturday, however, usually found him at his school.

In the spring, night sweats developed; but he managed to get through the school year. (Night school closed in April.) By June 25, he was on his mountain farm; he tried to work in the orchard, in the woodlot and hayfield, but failed. About all that he could do successfully was to care for the cows and poultry. His muscular energies were dying out, and even by the end of August, he had not recovered the power of sleep. Returning to his work, by December, he had lost 100 pounds and had grown very feeble. In February, one cold day, late in the afternoon, he collapsed at the school and was taken home. A month later, he found his way back to school, but in April he was granted a leave of absence and was carried to a sanitarium hundreds of miles away, where he died that summer from no obvious direct cause. Almost up to the very end, he wrote letters of the most sanguine, optimistic character to his friends. He never complained to his wife or to his physicians. He did not go suddenly all to pieces. His strength simply wore out; the flame of life died down, stage by stage.

Such a condition does not proceed without causation. The event proved that he was not adapted temperamentally to school work.

THE DANGER IN HIGH VITALITY

We come here to modern science. The adrenal glands above the kidneys secrete adrenalin and upon provocation excrete it,— in anger, fear, enthusiasm, any excitement. The muscles tighten, the brain quickens. The effect lasts twenty minutes, forty minutes, an hour. Then comes return of the adrenalin from the tissues back to the glands; and quiet reigns in the body again. The pituitary glands are involved in the same cycle. In this case, the pituitary fluid was drowned out by the adrenalin.

Now a normal man with a body coefficient (say) of 2.5 (height 5 ft. 9 in., weight 150 pounds) can stand this sweep and return of adrenalin four, five, six times a day without damage to the health. Indeed, unless he has some excitement, he will not stay well and strong but will become stagnant and sluggish; he goes stale; he dries up. A more frequent flow of the juices to and from these ductless glands above the kidneys makes any man thin and nervous — but unless too frequent, he thereby develops energy and appetite. School teaching tends to frequent discharges of these glands.

But it is one thing to charge a thin man with (say) a body coefficient of 1.9 with adrenalin and a very different thing to charge a fat man with a body coefficient of 4.2. Case 6 got on fairly well for some years as a class teacher day and night; but the moment he added politics and the second moment that he changed to school executive work, he passed his limit. Much of the adrenalin got into his brain and kept him awake all night. It raced his heart. It scoured his kidneys.

If he had greatly lightened his diet, cutting down the meats that furnish abundant materials for adrenalin and taking cereal protein rather than animal, he might per-

haps have kept his health. But he did not know enough physiology to do this.

Case 6 was not an ambitious man; rather he was conscientious and accommodating. Circumstances gave to him more than his body was able to endure. Its very bigness was fatal under the limitations of his general ignorance of physiology and of hygiene. Living in a boarding house with its night noises was a handicap. The time spent going to and from school,— four trips on four days a week and two at least upon two other days, averaging a half hour each,— was another handicap. Had he remained a grammar school teacher only, doing no night work, avoiding all school politics, he would probably have lived twenty or thirty years longer.

Temperamental instincts and environmental ideas,— a desire to please and oblige, unwillingness to say "No!" when asked to do more, delight in being a leader,— these largely explain this breakdown. These vital corpulent men and women, these soft, pleasant, kind people, do not belong in teaching for their own good. They seldom even enter upon teaching. Indeed, relatively but few of their number ever go to the normal school or college or even complete high school. Contrary to the general opinion regarding them, they often overwork; and they are characteristically short-lived when serving as teachers.

An important factor in the case of the vital corpulent,— such as Case 6,— is the social pressure upon them. It is a common sport to make fun of fat men and women, and it is common also to add that their looks show that they do not work hard. A fat man dislikes to refuse extra service lest he be charged with indolence and laziness. It is true that much flesh is a burden to one who does not work with one's muscles. It is hard for the vital corpulent to work at all,— much harder than for the muscular, the sinewy or the ideo-motor. Nevertheless, the

fact that the intellectual work of the vital corpulent is usually of a high order constitutes an offset not to be lightly regarded by the wise.

Case 6 died prematurely because he did not come to self-understanding in time to save himself against social pressures; and when he died, his city lost a man whom it has not yet been able to replace at all,— genial, buoyant, cheerful, diligent, enthusiastic, efficient and socially impressive and influential.

CHAPTER IX

ERRORS OF PARENTS IN CHILDHOOD CARE

CASE 7

CASE 7 at thirty-two years of age suddenly developed inability to eat and to sleep. This came on the last days of the school year; and she went away to a quiet summer resort. At thirty-five years of age, she disappeared for the summer months in the Rocky Mountains,— utterly unable to get on with people. Frequently, during the school year, she has had to spend Saturday and Sunday in bed. Case 7 often has what she calls "hysterics,"— which in truth, however, are poor imitations of the medical phenomenon roughly classified as hysteria. She never gets "besides herself," is never lost to common sense. She has had several minor surgical operations, such as the removal of small external tumors or cysts. She has small physical but perfect moral hardihood. Professionally, she holds a high place as a teacher and earns a high salary.

Nevertheless, Case 7 is distinctly a pathological case. She may live to a very old age. Often for months, she is very well and feels well. Seldom does she have serious pains. But she lives in a constant fear of that "gone feeling," when she must go to bed or run away from present realities.

Physicians, surgeons, dentists look over her and into her; and find nothing definitely the matter. Case 7 is a very hard and steady worker. The heads of institutions employing her regard her as a jewel above price. Several men have wished to marry her. Her pupils and as-

sistant teachers do not "obey" her; they help her because they like her.

Case 7 has now perfectly rationalized her life, her conduct, herself; but she cannot rationalize her teaching environment, which is always on the edge of being too much for her or actually sends her over the precipice for a day or a fortnight or a summer or a full year of being out of school, which has occurred twice.

A TEACHER BY HEREDITY

She is the product of inheritance and of family and school environments. Both parents were working teachers and good ones; they could not be good parents and fine teachers at the same time. They kept a house but no home. At sixteen years of age, Case 7 herself went into teaching. In consequence, she was fated to be robbed of her proper growth in all three stages of adolescence,— primary in the development of the womb and sex-organs and in stature, secondary in stature and width, and tertiary in thickness, weight and flesh. She is shorter and lighter than either parent. Most of her life, her body coefficient has been 1.7, a serious matter to one with relatively long body and short limbs. Recently at forty years of age, her weight due to special care has climbed to 135 pounds, which is thirty pounds more than her usual condition. She reached this once before at twenty-five years of age. But even this weight is forty pounds under that characteristic of her parents and grandparents, all of whom were rather large always.

We like to deceive ourselves by remarking of such persons that their small size and invalidism are the result of unaccountable birth-inferiority; but the childhood pictures show no such inferiority. The lifelong intellectual superiority shows that Case 7 was well-born. She has

succeeded in getting two university degrees in residence and in educating at her own cost a younger brother and has helped her parents financially in their failing old age.

We have here a case of two regrettable features, the altricious and imperfect development of the sex-organs and glands with characteristically irregular and deficient or superabundant menstruation and, second, the interesting phenomenon that Nature steps in every few weeks lightly and every few years heavily and enforces extra rest because of the generally characteristic overwork. Of course, teachers need the sabbatical year. Of course, no human being should try to do over six hours of intellectual work every day or over forty such hours a week usually. Of course, Case 7 often works at school duties twice these allowances. She says that she cannot help it; and according to present school traditions, this is probably true.

TOO MANY SMALL MEALS

In times past, however, Case 7 indulged herself in a good many false notions and habits. With an abnormally small stomach, she had nevertheless permitted the formation of the habit of eating "snacks" between meals, especially four o'clock tea, consisting of cookies and weak tea. This kept her alimentary canal in a perpetual state of gaseous ferment. She had a very small breakfast, a small lunch, a small afternoon snack and then tried to eat a decent dinner against which the angry little stomach often rebelled, with the result that, being hungry at ten o'clock, she had a small meal at bed-time. Also, she cared more for tastes than for food-values in her diet.

A one-quart stomach needs a one-quart meal as much as a two-quart stomach needs a two-quart meal. With-

out a comfortable bolus of food, the stomach fails properly in its vermicular action, which, though simply mechanical, is a distinct help to digestion.

INDIFFERENCE TO FUNCTIONS

It is written strongly in the nature of all normal women to have a four-day menstrual period, following the moon-month of 28¼ days. In consequence, menstruation occurs normally (say) on Monday, June 1; then Monday, June 29; Monday, July 27; Monday, August 24; but Tuesday, September 22, instead of Monday, September 21. Ordinarily, the second or third day of the menstrual flow is the day of severest nervous instability and weakness. Every physically normal woman teacher ought literally to lie low one day during each month; that is, stay quietly at home and rest. But the school regimen generally does not permit this, though in a few cities and in a few institutions women teachers are granted at their option one day off a month with full pay. Of course, some women of great muscular and nervous strength feel no need of such a day of quiet; these are of the political, non-marriageable type who advertise themselves accordingly. They are as sexless, as unsympathetic and as unintelligent as some men in teaching. Any normal woman anywhere, foreseeing that her menstruation is to begin on Monday or Tuesday should take especial pains to rest on the preceding Sunday. Any normal woman whose menstruation did begin on Wednesday, Thursday or Friday should rest thoroughly on the following Saturday. Unless she had positive pain, as occurred sometimes, Case 7 paid no attention to the monthly flow. She did not perceive that much of her ill-health was the direct consequence of this ignorant carelessness.

Why do not physicians tell all women these things? First, because few women listen to and obey their physicians. Second, because maidens generally resent any advice upon this subject; they go to physicians to get cured, not to prevent the need of being cured. Third, because many physicians do not know and do not try to understand the truth about school programs and operations. However, nearly everything that physicians say about schools is true; probably most of what they think is also true. My own opinion about the way education is run in America is that *the physiological ignoramus rules supreme.* For example, I regard the five-hour high school day a crime against youth and posterity. Fourth, physicians do not warn women teachers about their menstrual requirements because they imagine that the mothers teach all that is necessary, which is generally not so. Fifth, physicians are healers, not hygienists, pathologists rather than physiologists, which is both unnecessary and unfortunate but not unreasonable in view of the fact that custom requires them to live by fees for cures, not by salaries for keeping men and women well. The Chinese, who do some things well (else their civilization would have perished long ago), pay their doctors only when in good health.

The third notion of this Case has been that she should give all that is in her daily to her work. With a vivid and large imagination, this work has included the routine of instruction and supervision, the charge of a girls' sorority, playing in the amateur theatricals of the institution, taking an active part in the Young Women's Christian Association and helping her colleagues, male and female, in the preparation of books and papers. She has also represented her institution several times a year with one or more addresses at teachers' institutes.

Inevitably, one asks two questions: — why is this

woman not herself a school or college executive? Why has she never married? One answer serves: — She has felt inadequate,— inadequate even to her present duties, inadequate, therefore, to social control and inadequate to being a successful and happy wife and mother. It is said that she has "instinctively refused marriage." The contrary is true. Instinctively, she has hoped to marry; she is a warm-hearted, affectionate, whole-souled, sincere person. But she has realized in conduct, though perhaps not self-consciously, that physically she could not marry with success. Her upcoming was no upbringing to a whole normal life. If at sixteen years of age, when she left home to earn her own living, she had become a muscular worker and had kept good hours and eaten good food, her secondary and tertiary adolescence probably would have brought her almost up to normal physique; in which case she would have married successfully..

Case 7, therefore, becomes an arraignment of two teacher-parents, of their ideas and conduct, and of the world of education a generation ago. Unhappily, there are some "Case 7's" that are being caused in these years of the twentieth century.

Case 7 is not wholly cured of her false notions. She still sits and knits when she "has nothing else to do"; or runs over to nurse another woman's baby for an evening when she "has nothing else to do"; or writes letters to her thousand friends and former pupils when she "has nothing else to do." Perhaps Case 7 will never learn to sit and do nothing at all,— except store surplus nervous energy. Case 7 is an invaluable friend to everyone else than herself; she is one of the women workhorses of the higher culture.

Case 7 has all the artistry and high-skipping of her Norman French blood and some of the social tact of her Highland Scotch blood. She has just enough of the pure

Angle to be persistent and inconsiderate of herself. Perhaps the excessive range and variety of her interests may be traced in part to this wide range of hereditary traits. What a success she might have made as a professional actress the world will never know.

Some persons collapse especially when they have something just ahead to do that is disagreeable; it is like "playing 'possum" to avoid duty. Most of these cases are physically pathological and should not be taken as deliberate faking. But other persons collapse when on the threshold of some great pleasure or merry-making or of some long-desired opportunity. It is a collapse like the bursting of a soap-bubble. Such persons are made intensely miserable for awhile as though the gates of Paradise were shut in their faces. They are like business men trying to handle million dollar enterprises on ten thousand dollar working capital funds. The slackers who soldier on their jobs and finally flunk should not be confused with the valiant weak who undertake beyond their powers to perform. It is to the latter order of womankind that Case 7, by reason of heredity and of early rearing belongs to her own chagrin. American schools and colleges have many such good women.

CHAPTER X

DEFICIENT PHYSIQUE FOR TEACHING

CASE 8

THE history of Case 8 as a teacher so far is very brief. She was graduated from college at twenty-two years of age and immediately entered upon high school teaching. In four months, she came home a physical and mental wreck; and after some years shows no considerable recovery. Fortunately, she has a father and a home. She went into teaching for the sake of the experience and mental enlargement. Baffled, broken and chagrined, she is unlikely to try again.

Every year, there are thousands on thousands of teachers whose brief term of teaching has broken their health and who drop out hating the occupation and yet disgusted with themselves for their physical inability to cope with its conditions. Case 8 is a striking illustration and a loud warning against experiments of this character. Before she began to teach, those who knew and understood her physique advised her not to undertake the work.

She came of intellectually brilliant families,— statesmen, preachers, architects, social leaders for many generations. There are, however, two traits in the heredity that have been injurious to this scion,— social ambition and love of money. A high school position seemed to offer both social prestige and an addition of cash income to her family,— which in truth needed neither.

Case 8 was five feet, five inches in height and weighed at graduation 125 pounds. She is a brunette. Her pulse

was low, slow, weak, irregular, very hard to get at all when she was excited or frightened. (55 to 90, with a tendency to 58 or 60.) Her voice was so low that she could scarcely be heard even by those near her whom she was addressing. She avoided society, never went out with young men, but tried hard to get high marks in her studies. She preferred as companions women many years older or boys and girls much younger than herself. (This is a trait of morons and hypermorons, but Case 8 is intellectually superior and in no proper sense a moron.)

She is mainly English with some traces of Belgian blood. Delicately bred, living in an atmosphere of intellectual discussion, surrounded by family friends and supported by their affection, she suffers from pity where she desires admiration. And while she suffers, she hates the rural school principal, the rural school board and the rural community where she was defeated and humiliated.

AN ENVIRONMENT OF IGNORANCE

Case 8 ran into this school condition,— forty high school pupils, one hundred fifty elementary school pupils, six elementary school teachers, her principal, who was supposed to help her teach the high school courses but did not, and no colleague,— with a four year high school program to put through every day. Her principal was no older than herself and had never been to college. He spent his day disciplining pupils and visiting classes. She tried to teach the entire high school curriculum,— four subjects a year, four years, that is, sixteen different subjects each week, and an average of twelve each day. Her living room was in a farmhouse taken over by the village preacher and had no heat whatever. She ate at the village hotel,— an affair connected with the crossroads general store.

Against all these conditions, Case 8 felt a moral revulsion. She knew that the high school required first of all a well-educated veteran principal, who could and would show her how to teach and up to whom the boys and girls would look in admiration. Next, she knew that to carry on the program honestly required the services of not less than two other full-time teachers. Even so, each teacher would have five different subjects to prepare weekly. There is no such person as one competent to teach physics, French, algebra, history, English rhetoric and literature, bookkeeping and yet other subjects daily. She knew this and resented what she styled "being a fake." As a young woman, she resented the disposition of the preacher family of farmer stock toward herself for teaching; they considered her as no better than a farmhand and assumed that she taught because she was poor and needed the money and knew no other way to get it. The social prestige of her father and family was meaningless to them; that human civilization depends not so much upon food as upon the circulation of wise thoughts, they did not comprehend.

Her voice was so weak, her manners were so gentle, her soul was so pure, innocent and remote from the world, this rural world, that she herself was inconsequential. She had no way to enforce her instruction upon the minds of parents or pupils.

While she was getting sick from cold and from criticism, the village school board voted to ask her to resign and quit,— which she promptly did, went home, and took to her bed.

All of which seems to have but little to do with physiology. But why was her voice weak? There is a strain of thyroid gland deficiency in her breed. Some of her kin die of exophthalmic goitre. Her own thyroid development is poor. Her growth never came right. She

has very small narrow shoulders and a weak mouth. Her movements are very slow. She had medical treatment of a modern character prior to this calamity and has had more since with good results.

The great change in her regimen has been to get outdoors in the family motor car and in walking. Indoors, housework has been prescribed with benefit.

Case 8 suggests three hygienic propositions.

First, physicians should seek to correct in children the procedures of errant thyroid glands. This is a newly discovered duty of parents, teachers and physicians.

Second, persons like Case 8 should not try to teach anywhere. She would not have been admitted into a well-managed city school system as a teacher under ordinary peace conditions.

Third, but if and when such persons do teach, they should insist upon having competent school principals over them; insist and if and when refused, they should decline to teach forthwith in order to save their own health and reputation. The moral indignation of Case 8 should have boiled over,— which boiling over would have saved her from being publicly branded as a failure, and the school itself from being ruined as it was by an incompetent youth, and education from being held in local contempt for the whole affair.

Bad as was the educational situation in that village, in many other schools it is still worse; and it will never be better until young women teachers are thoroughly indoctrinated in and habituated to the belief that their first duty as teachers is not to be silent because silence is "ladylike" but to be frank and truthful and yet ladylike. Young women will remain publicly silent until they learn to take walks outdoors or to play tennis, and to keep their blood well oxygenated, no matter whether their thyroid glands are good or not. We must also have complaints

publicly registered in protest against communities where teachers are neglected as to their home needs out of school.

Case 8, then, is eloquent of the necessity to select occupation according to physique and also of the necessity to instruct many communities how to appreciate the teachers who come to serve them loyally. The young woman who followed this failure had less intelligence and inferior culture and made a worse, though a different, failure. And the young man had to find another high school as principal to victimize the next year. These results, however, have not helped Case 8 to recover physically from the moral shock that she has suffered.

CHAPTER XI

INSUFFICIENCY OF MIND FOR TEACHING

CASE 9

"MAN does not live by bread alone, but by every word that proceedeth out of the mouth of God," — i. e. by truth. There are persons made ill, very ill, by nothing physical but by false notions socially enforced. No change in diet could possibly help them. They do not need more sleep; more exercise; more baths, better dental care; or anything else for their bodies. They need a new set of notions and habits. Case 9 is in point.

He was plain Angle by ancestry with all the traits of his race. He had attained the highest educational standing possible to an American scholar and held an important post that included some teaching. And he had reached the age of forty, with a wife at once handsome, well-educated and very fond of him. They owned a home and much other property; but he went insane, as the Angle under social pressure is aberrant enough by heredity to do all too easily.

Case 9 held intently to his own ideals. He proposed to make the world conform to his own high and generally correct standards. His was a mind of habits, very good ones; but not a flexible mind quick to adjust itself to changing situations, not a mind that flowed around and engulfed obstacles, but a mind that struck the rocks in the current of life. He could not ooze around a difficulty; or undermine it; or jump over it joyously; he had to knock it out. In consequence, Case 9 made the most loyal

friends and just as aggressive opponents; he split his world into two parties, for and against, with none indifferent, no soft, easy, restful neutrals. Unhappily for himself, his position was not important enough for his opponents to become life-and-death enemies, aiming to get him out. Instead, they preferred to badger and bear-bait him. (Both badgers and bears enjoy quarrels so much that they grow fat in the game of life. Bears as well as men engage in bearbaiting.)

Case 9 believed in system and in records. He could and did make public speeches in faculty meetings an hour, even two hours long, defending and explaining his records and methods. The least opposition brought from him long streams of talk. Yet he was by no means garrulous by nature; his talk was conscientiously done as from necessity. Six months before he went insane, medical men and psychiatrists began to notice and to mention to one another the aberrant tendencies and developments. In one instance, he heard a false rumor affecting a man whom he disliked. Notwithstanding repeated corrections of this rumor, he repeated it daily and could not correct his own memory regarding it.

BROODING

Consider a good machine with many axles and gear wheels, receiving power over a pulley from a belt. Shift the belt to the power wheel and the machine goes to work quietly, tremendously. But of a sudden a gear wheel strips its gears and the wheel begins to race because it can no longer convey power and do work. Case 9 had wheels in his head and great driving power but the judgment gear wheel stripped its gears and went on a mad race. Physicians, friends, higher authorities advised Case 9 to quit his work and go to a sanitarium. His

wife pleaded with him. He was relieved of part of his duties, notwithstanding his own protest. This move of his real friends created dire suspicion in his mind. One night he went raving mad. A few weeks later he had quieted, and frequently walked about the streets, with face marked with court-plaster where he had torn his cheeks with his fingernails. His usual errand was to take flowers to his friends. After a year of devolution of mind, he died in a private asylum.

This was no case of neurasthenia; nor of paresis; nor of paranoia; nor of split personality; nor of melancholia. It was simple dementia,— loss of mind from fret and misunderstanding and brooding.

The man who cannot get his mind off of one subject, — whose mind does not play,— will soon have no mind at all. He may become a fool; he may become a maniac; he cannot remain a normal man.

Case 9 needed two changes in his daily regimen,— first play; second, amusement. He took life too seriously, too strenuously.

A human brain contains virtually for practical purposes an infinite number of cells that break down rapidly but have the marvellous, the miraculous power of teaching their successors all that they know. The entire brain is new every few weeks. The used parts of it are new perhaps every day. Nor does the brain get tired of wearing away at the same points daily perpetually; on the contrary, it has a distinct inclination to do this thing. In addition, when a part (a nerve nucleus) is used much, there is a distinct inclination not to spread over to surrounding parts. This amounts to cutting deep ruts in the brain. A pretty illustration of this is that a person who both plays the piano and works a typewriter finds that the two sets of finger habits conflict with one another. He types all day and then tends to type on the piano; or

he plays the piano all evening and the next morning finds himself playing with a piano action, upon the typewriter. In consequence of this, a brain needs widely-irrigating exercises that will relieve overworked areas and draw others into use. Such exercises are plays.

The plays for adults are many, golf, horse-back riding, tennis, swimming, skating, hockey, baseball, games with one's own children.

Every adult should play every day at something or other. The ecstasy of play is a safety-valve.

Case 9 knew this but allowed professional duties to crowd all play out of his life.

An inferior substitute for play is amusement, which takes more forms even than play. There are concerts, operas, movies, chess, supper parties and other relaxations.

Case 9 had no amusements. Occasionally, he took his boy out for a walk in the woods and taught him botany. Even at receptions and formal parties, he talked shop. He imagined that his religion required him to be serious all the time. To him, talk about education was all that he knew of seriousness. He thought even of religion and of philosophy as means to the educational end. Even what science he knew was so bookish that he never set up a carpenter shop in his basement or an electrical laboratory in his attic. He lived in abstraction designed to effect social control through the school.

He considered it wicked to read a modern novel. He objected to "wasting" time. He believed not in the short-hour, high pressure work day but in the all-hours, high pressure work days. He made realities of unrealities and lived in ideas and emotions and in moral battles.

His wife felt but could not counteract his drive toward mental ruin through ever narrowing interests in his daily life.

If, however, his colleagues and friends had foreseen what might happen and if all together they had in a kindly way conspired to make him play and to learn how to be amused and to enjoy both play and amusement,— most of them play and are amused at life,— if they had understood the inner workings of his mind, they could have turned him aside from this fate.

Always some men and women in teaching are going on this downward road. It is the down grade that draws also many a farmer's wife. But in more than half the cases, something happens to save the victim. An instance in point was that of an educator whose unexpected bankruptcy from outside interests ruined his reputation and took him out of education,— only to make him a house-contractor, rich and happy. Like Case 9, he was "going daft" over a few pet educational notions. A house-contractor with but three ideas in his repertoire will soon cease to function. One idea sometimes makes an educator famous. Common sense men of the world look upon such educators as mentally unsound, "half-cracked," "half-baked."

THE NECESSITY TO PLAY

This man used to say when it was suggested that he join the country club and play golf and whist, that this would lower his professional standing, that he often heard persons passing by the golf links comment upon the leisure of the golfers unfavorably. But the truth is that the men and women who really control American affairs in a large way think favorably of such persons as can get their work done and have leisure for physical renewal.

The personal hygiene of that teacher is not complete who never thinks of play and relaxation, and never shares in the fun of being alive —"Consider the lilies of

the field, how they grow. They toil not neither do they spin. Yet even Solomon in all his glory was not arrayed like one of these."

A fishing-pole of a Saturday at forty can save a man from the asylum at fifty years of age.

Raise calves and colts.

Indulge in railroad tickets, the best of geographies.

Take two friends to a restaurant for dinner.

Read Kipling or O. Henry or Dickens.

Do anything except grind all day every day from year's end to year's end lest life or mind end sadly and suddenly.

Sunrise to sunset six days a week are the extreme limits of work for any sane man.

Even write verse though no one else ever reads it. Do something, anything greatly different from the set tasks.

Have a vocation, an avocation and at least one hobby. Be several different persons within the law.

One woman going the dreadful route of Case 9 was switched off by being transferred to another school and required to move into another boarding-house half a mile from her place of teaching. She fought the proposition; but being given the alternative,— discharge,— accepted. Three months afterwards she was a new and happier woman.

Man is born a nomad. He was not born to occupy an underground cave all his life. He was born to rejoice in sea and sky and change. The normal mood is that of Marcus Aurelius,—"My life is the sojourn of a stranger." The passion to found an ancestral estate in order that one's great grandchildren may die in the same bed as oneself is highly mediæval and artificial and distinctly a transient phase of human ambition. The natural man prefers with Plutarch to "voyage among many cities."

Any education that binds a man to a particular trend of thought and action is no education at all but an imprisonment of the spirit. In the reformed education of the period when we shall of necessity reconstruct education by democratizing it to meet the new needs of social life, we may forestall in very many cases all these tendencies to insanity from false ideation by placing in the school programs, along with very much greater amounts of science, history, literature, and the fine arts, enough biography to establish in all intellectual persons the conviction that successful men and women live varied days and engage in play and are glad that the whole burden of the universe is not one man's to carry. The man here took himself too seriously, and the world also. He might have learned much of value by discovering the real lives of the great, from Washington and Lincoln in America, to Homer the musician and Shakespeare the player in Europe. In truth, training is only small part of education,— necessary but far from all of it. The free spirit that plays and enjoys is far more powerful in developing a good man than discipline such as this man enforced upon himself.

CHAPTER XII

BURNING THE CANDLE TOO FAST

CASE 10

AT thirty-five years of age, Case 10 had an open world before him. He was handsome, healthy, brilliant and popular. He had a beautiful wife and one boy. Of American birth, he was a true Anglo-Saxon, as much impulsive Angle as amiable Saxon. Already, as an educator, he had a good salary and ranked as the second man in the service of his city.

His Saxon traits of congeniality and cheerfulness proved his undoing. He had, however, a sound constitution and bore up for a long, long time.

He was blond, blue-eyed, five feet ten inches in height, and weighed 175 pounds. He had enough of the Angle in him to be alert and athletic. His boys at school as well as his colleagues liked him. He was the beau ideal of the young women school teachers of the city. He dressed with taste and care.

His physical regimen included bathing, tooth-brushing, gymnastics and almost every hygienic requirement,— almost every one.

Case 10 began by drinking fine tasting alcoholic stimulants and smoking good cigars after school hours like a gentleman at his club, not with other educators but with politicians, journalists, business men and men about town. At this phase of his career, he began to show an irregular pulse and high color in his cheeks.

Then came a great political disappointment. He was

defeated by an outside candidate for the city school superintendency. The very school board members who had sat in the club with him smoking and drinking were afraid to put him before the city as the foremost educator.

The next phase saw Case 10 smoking cigarettes on the way to school, taking brandy and whiskey in small sips during school hours, visiting cafes after school and playing cards for money and doing worse until the early morning hours with young bloods of various social grades. He seldom got over six hours abed at night.

His wife, believing him unfaithful, went home to her parents; but he kept his house open after a fashion. His gambling netted him money on the average, and he lived high. He became very influential in ward politics.

Then came a second disappointment. With the support of every newspaper, he deadlocked against an extremely serious local candidate for the city superintendency, and again he lost.

At this stage, Case 10 breathed with difficulty. His skin was white as a sheet. There were great blue pockets under his eyes. His heart was pumping hard. Indigestion kept him from eating good meals; but he took to crackers and milk as his main reliance, which was intelligent.

At this stage, Case 10 looked incandescent like a human gas mantle.

The third period saw him much reduced in weight, excessively brilliant in conversation and erratic in judgment, and frequently napping in his office during school hours. His wife returned to him for the sake of their boy and of the family name. She appeared like an old and haggard woman. He ceased to stay out late at night; but began to cough and to have night sweats. He was still the second man in the city school service.

Then came the third disappointment. Again, the city

superintendency was vacant. Again Case 10 was a candidate. But now he had not one supporter. It was to him a hideous disillusionment. He never claimed to have reformed; in truth, he frequently got drunk after school. But he did believe that as the leader of all the men of the teaching force, the ablest executive, the most fluent public speaker, the political head of his ward, he would get at least one vote. On the contrary, a local man of quiet nature, barely thirty years old, defeated him unanimously.

Case 10 had misunderstood the social forces.

A year later, he was given leave of absence. The clinic examination indicated that one lung and one kidney were out of commission. That winter at the first snowfall, he died in his first hemorrhage of the lungs.

There are two flatterers peculiarly gifted in seducing some brilliant professional men who do not take much muscular exercise out of doors, alcohol and tobacco. Neither one alone is very dangerous to men of muscular motor temperament who live out of doors. Both together have deceived, seduced and destroyed many a Case 10.

Under their influence, Case 10 became untruthful even to himself. He lost the power to remember conversations, to count correctly the number of children in a class, and to tell right from wrong. Naturally without a trace of malice, he became hateful to a loving wife because she could not trust him.

He never meant to reform or even to improve his public conduct. A nauseated stomach and a rebellious nervous system compelled him to cut down his offences; but he was never repentant.

In most cities, Case 10 would have been discharged, but the frequent changes in the city superintendency and his own hobnobbing with just as frequently changing board members prevented this.

The moralists of the city who knew the facts,— mostly the older women teachers,— charged the ruin of Case 10 to one or more of three causes,— 1. the clubs and club-life. 2. alcohol and tobacco. 3. a too lenient wife.

Case 10, like most Anglo-Saxons, had a poor instinct of self-preservation. He longed to be known as "a good fellow." He could not resist the invitation to "have another." Case 10 was known to drink a dozen cocktails and as many whiskies and brandies at a single night session. He drank enormous amounts of seltzer, so enormous that his skin was bleached and his kidneys bloated by excessive water.

WHAT MIGHT HAVE BEEN

If the world war had occurred in the period when Case 10 was going from 25 to 30 years of age, he would have become a first lieutenant; or when he was going from 30 to 35, a captain at the least. On the firing-line, he would have been a hero. As an educator, he undertook more than one heroic enterprise. He fought through the state legislature one of the first bills for teachers' pensions ever passed in any of our States, perhaps the very first. Hundreds of the leading statesmen and politicians in Great Britain and America have had just his virtues and his failings,— and not a few preachers and literary men. His profession caused him to be judged by unusually high standards.

That Case 10 should die in the early forties from hygienic mistakes shows the need of more hygienic knowledge among teachers. Prohibition is putting an end to alcoholic stimulants. For a man like Case 10 to work hard professionally from 8 A. M. to 4 P. M. and then to smoke cigars from 4 P. M. to 6:30 will almost insure his having no appetite for a good dinner.

One who has observed the health-history of very many men and women, who has looked on birth and death and visited many of the sick, is not likely to list tobacco as either a therapeutic aid or a destructive poison as such. All the same, three cigars a day, one after each meal, or one after the noon meal and two in the evening will do far less harm than three cigars from 4 to 6 P. M. Case 10 had a lit cigar, cigarette or pipe at hand for the three years when his internal organs were going to ruin on the average twelve hours a day and spent on the average three dollars a week on tobacco for himself. Being popular and associating with freer spenders than himself, he received more cigars as gifts than he gave away in treating.

Too little sleep; irregular hours; alcohol; tobacco; neglected and excessive eating; no care at home; heavy professional work,— these destroyed Case 10. He was a breaker of physical laws. The tuberculosis germ is ever ready to seize upon such persons.

CHAPTER XIII

EXCESSIVE ANXIETY ABOUT HEALTH

CASE II

CASE II was a philosopher who died at forty-five years of age. He was a Black Kelt by breed,—of the type so often seen in the priesthood. He was a faultless man in character and conduct,—with a merry wit and a glad smile. All the intelligent who knew him both loved and admired him. They talked about him and quoted him.

Beginning at forty years of age, Case II wore a raincoat and rubber overshoes every day of his life outdoors even in summer at noon. Most of the year, he wore under the raincoat an overcoat and around his neck a muffler. In the snows of winter, he wore the heaviest of woolen underwear and a fur cap over his ears, and rubber boots with slippers inside. At forty-two years of age, he began to drive in a phaeton everywhere, for he was afraid to put his feet upon the earth and avoided even cold sidewalks. He slept in a warm room at night.

Case II spent hours every day studying anatomy, physiology, hygiene and sanitation and developed several fear-psychoses. He was afraid of (a) cold, (b) damp, (c) wind, (d) germs. He liked to work with his hands and kept a printing press and plant in the first floor of his home. He had no children; but he had an over devoted coddling wife. In all, Case II spent daily perhaps thirty minutes out of doors from necessity. If his means had

permitted, he would have kept a coachman and a closed coupé and had the coupé heated by an electric foot warmer twelve months in the year.

Of course, this process completely bleached the brunette pigment from the skin of this dark Kelt till it became like white tissue paper and so sensitive that he could not stand a Turkish towel rub after his daily warm bath. This bleached skin so failed in its normal functions as to overload kidneys and liver and lungs.

After forty, sweat considerably every day from exercise or summer heat; or else die at fifty-five from kidney disease! Such is Nature's law.

Also, this process softened and thinned all the muscles of Case 11, internal and external, including the alimentary canal. He lost all his teeth from caries and pyorrhea despite all his own and his dentist's efforts. He became abnormally thin. Six feet tall, he sank to 125 pounds in weight.

His diet was physiologically ideal.

His colleagues, especially the professors of hygiene and of biology, warned and warned him. His physicians gave him heart stimulants and tonics. All to no purpose. Case 11 knew that he could not live long; and he did not.

His wife consented to an autopsy, which showed that there was nothing structural that had gone wrong in him. Case 11 died of inanition. His metabolism failed. His embodied spirit had insisted upon being disembodied and, of course, won.

He had been a profound scholar,— with the vision of a statesman and with the English, both spoken and written, of a literary artist. He was a master of the classroom. No saner man ever talked upon public affairs; no wiser man could be found to advise others within the field of education. Everything queer about him was confined to his own notions about himself.

THE ANCIENT INSTINCTS

The riddle is easily read. Case 11 was born in an Irish bog upon the wet west coast of Ireland. For thousands of years, his race had lived as bog-trotters. In winter, their thatched huts were full of the smoke of burning peat. Six months in the year, they tasted fog and mist in their throats. For thousands of years, his forefathers had run around with their feet and legs wrapped in long bands of goat skin; their backs covered with the furry or hairy skins or pelts of whatever animals from wolves to cows had fallen conveniently to their hands; and they were never warm. This scion of the long Irish line knew hygiene and saw the clear air of America; but he felt the damp and chill of the Emerald Isle. Pure, true, unconquerable instinct!

His was a short-lived race. A younger brother had already died of consumption. This man lived to an older age than any of his parents or grandparents; he had no hereditary instinct for true old age, hale and hearty.

In seeking for the key to the poor health of some persons, one should not forget these ancient instincts, some of them long antedating the humanness of man. It may be hunger, causing the patient to overeat. It may be parsimony and fear of cruel winter and still more cruel old age and want. It may be the sex-instinct and lust. It may be vanity causing one to spend upon one's front-and-back what should be spent upon one's stomach. It may be fear,— fear of the night; or of the cold; or of persecution by enemies, whatever the fear it will not reason, nor will it go forth and acquire the facts upon which to reason. Instinct causes one to hide in oneself. One of the most frequent instincts is the fear of death, which unless rationalized may cause death by causing

cessation of effort. Man lives best by adventure, which releases his powers. For six years, Case 11 never left the town in which he lived even for the venture of a summer vacation.

In the differential individual diagnosis which is essential to the right treatment especially of these intellectual persons who practice the art of teaching, one should often try to get below the habits into the heart where the instincts issue their commands. Perhaps an instinct that causes as much trouble even as fear is curiosity, such as keeps a scholarly teacher up reading all hours of the night or working in his laboratory amid fumes that stifle breath. There is a limit to the gratification that a teacher may permit to his curiosity instinct.

It happens that in this case under consideraion, the man whose fear kept him indoors so much had also an excessive curiosity such as required him to read a vast amount of literature that a mere glance should have showed to him was altogether useless whether for his teaching or for his own conduct. Besides the fear that almost froze the blood in his body, there was this tormenting curiosity that kept him reading hour on hour at night when he should have been abed and asleep. Instincts are useful points of departure, useful sources of action; but nothing more. Whom they master in civilized life, they slay.

CHAPTER XIV

SURGICAL RELIEF

CASE 12

CASE 12 was that of a high school teacher of English. She was a typical Saxon woman,— like the German Saxons in her social notions rather than the English, born for domestic life yet highly educated in a woman's college. Her troubles were headaches from eye-strain and a painful shrinking within herself due to timidity. Despite her parents and family life, she solved these problems and became a successful and happy teacher.

Any one who teaches English well has too many papers to read for the good of one's eyes. Case 12 had small light blue eyes and by no means vigorous physique. Such eyes see well but easily tire. In addition, she had a city school superintendent with an excessive zeal for written reports of many kinds from all his teachers. Being a very conscientious person, anxious to meet all requirements, Case 12 prepared these daily reports in an artistic and finished manner; from which cause, she was highly valued by the main office. Finding herself among those singled out for especial praise and for extra duties accordingly,— such as faculty adviser to the high school paper,— made Case 12 actually ill. Her parents, however, were delighted that by the third year of her teaching she was recognized as displaying exceptional talent.

Case 12 promptly resorted to an excellent oculist who corrected her eye astigmatism and forwarded her to an expert in woman's diseases. The second physician found

that she needed a slight surgical operation, which he performed forthwith. Then the two physicians, having heard about these teacher's reports, visited the school authorities and protested against them. The young city superintendent, university-trained, was taken by surprise and capitulated. Soon afterwards, a man of more experience and less education succeeded him; and reports were reduced to a minimum.

The parents and friends of Case 12 noticed a rapid and gratifying change in her disposition toward life. She ceased to be timid. She ceased to have headaches. She took more interest in social affairs, and much more interest in her own health and strength. At the end of her first eight years of service, she took a leave of absence without salary and went travelling in our own country. A long illness of a brother from tuberculosis, with partial recovery by wise therapy and life in the Adirondacks and later in Arizona, taught Case 12 the importance of not getting so far down in bodily vigor as to be an easy prey to that scourge of humanity and specially severe and frequent curse of teachers.

Fifteen years after these treatments, Case 12 was the picture of good health; body coefficient 2.25; pulse 78°; temperature 98.7° at noon. And she wore her spectacles good-naturedly. She had quite forgotten, so she explained, that she had almost broken down at twenty-four years of age. "One warning was enough," she said, with a smile. The high school in which she teaches has but twelve pupils on the average to one teacher. The minimum salary of a teacher is $1,000; the maximum $1800 (not including the principal). The building in which she teaches is commodious, sanitary, modern. The sessions are from 9 A. M. to 12 A. M. and from 1:15 P. M. to 3. Conditions are favorable to all teachers, as, of course, they should be.

CHAPTER XV

SCHOOL EPIDEMICS

CASE 13

THE double kindergarten in the public school concerned in Case 13 was a fine, large, sunny affair where every one was always happy. There was a good piano, and the floor was kept remarkably clean. It was scrubbed once a week, and brushed every afternoon. The tone of the entire situation was cheerful, even joyous. Nor was the number of children,— averaging 45,— excessive for a double kindergarten with two healthy, well-trained kindergartners, required to be at school in all only three hours a day. The session itself was from 9 A. M. to 11:20. The women had fair salaries for the period,— about 1900,— viz. $600 and $500.

But the children! They represented more than a dozen different nationalities,— Italians, Hungarians, Poles, Russians, Jews, Germans, Swedes, Dutch, American negroes of several colors, French Canadians, colonial Yankees, English immigrants, and others. The room was more than a kaleidoscope; it was a current of transients.

Several times a week, this room was carefully sprayed with disinfectant from a big atomizer. But as these kindergartners explained, no sooner had the mothers (who met there every week or two) learned how to keep their children clean than they moved out of the district or the children were promoted to first grade, and new and ignorant mothers with more dirty children took their places.

One day visiting the school the city superintendent found a big boy carefully sewed up for the winter by his mother who had sent a note as follows, viz. "Don't you try again to wash him. I fixed him right. My man say not touch John." The city superintendent took the boy into the principal's office and, despite violent resistance, took off all his clothing and gave him a perfect bath with a vigorous rub down. That afternoon, both parents rushed to the schoolhouse and tried to find the superintendent, loudly declaiming to the principal that the boy had never been washed before and must never be washed again lest he "catch cold and get dead."

Many a glorious transformation in character, conduct, hygiene and personal appearance was wrought by the kindergartners there, battling against the ignorance of European field peasants become American city factory workers.

Then came an epidemic of measles in virulent form. The germs seemed strangely efficient. Even the adults of the foreign ward had hard cases. Though not a single victim died, many were ill a long time and had serious sequelae, such as running of the ears and badly inflamed eyes.

Case 13 was the kindergarten assistant,— age twenty-one, body coefficient 2.10, of Scotch-Saxon heredity. The older woman kept her throat well sprayed with mild disinfectants and kept her hands off the clothes of the children.

Whether Case 13 caught the infection from a child just coming down with it or from one released too early from quarantine or otherwise, is unknown; but there was a terrific onset and a long, long battle for life and a recovery that required half a year. Measles? Yes, measles. Possibly, the measles were complicated with something else; but at any rate, measles was the carrier.

Sometimes, the teacher catches whooping-cough; sometimes, the pneumonic plague (influenza); sometimes, diphtheria; sometimes, even tuberculosis from her charges. It is true that teachers catch infectious diseases from children less often than is popularly supposed. One of Nature's rules helps the adult who teaches children; for adults seldom catch diseases from children. Statistics indicate that the chance of catching most diseases from persons not half-grown by persons full-grown is but one-third that of catching diseases from others full-grown. Probably, teachers catch infectious diseases from children through repeated and cumulative infections so that when taken ill, they become serious cases, needing great care.

What is the prophylaxis indicated?

DISEASES OF THE CROWD

All infectious diseases are herd or crowd diseases. Do not allow the children to play too near together or close to oneself. Wear gloves when handling their clothes, wash face and hands well with soap and hot water and spray throat and nose well after school both morning and afternoon. Keep the lungs filled with fresh air as much as possible. And by all means go to bed and get a physician when one has the first symptom of any epidemic disease.

As for contagious diseases, one may get them as readily from a child as from another adult.

In a schoolhouse with seventeen rooms and eighteen teachers with over 700 children, one spring, there were over 200 cases at one time of the following diseases, viz.— diphtheria, tonsilitis, pneumonia, grippe, sore throat (?), colds-in-the-head (?) and whooping-cough.

Before these diseases had run their courses over 300

pupils with three teachers had been ill. Two children died, one of diphtheria, the other of pneumonia.

This schoolhouse had three floors in use,— seven rooms on the first floor, eight on the second and two on the third. There were two daily school assemblies, the first floor making one, the other two floors another. All but two of these 300 cases occurred in the rooms upon the first floor, the two exceptions being cases in the same families with children upon the first floor. In respect, to the teachers, all three cases occurred at the first rush of the epidemic; and they may have taken the infections from outside the school. However, be this as it may, the history of this school epidemic of throat and lung troubles shows that it was not "in the air" but was directly due to human contact.

The school authorities reacted vigorously. Every room was thoroughly fumigated with formaldehyde from Friday to Monday for four successive weeks. All the woodwork, floors and desks were well washed with soap and hot water and wiped over with an antiseptic solution. There was effective quarantining of every home that had a case. Some days only one child in ten or twelve was at school upon the first floor, while the attendance upstairs was reduced only by the absence of children in the same family with illness.

The teachers were vigilant to see that none of the force should get the infection in the characteristic return a few weeks later. No such return occurred.

Some epidemics do not cease until they have made two or three quick tours of the world,— that is, within two or three years. In these tours, they spiral and eddy among the various peoples in cities and towns and countryside until every person has been tried out to discover whether he is immune or a victim.

It is a fair question whether any process within the

opportunities of the teachers and medical inspectors and nurses engaged in public education can ever completely defeat these epidemics among children. Finally, the race will defeat them, but resort must be had to expert sanitarians and to stringent police measures quite beyond the time, the authority and the scientific preparation of teachers. From the viewpoint of the general human welfare in which all society is concerned, it is expedient that the two functions of teaching and of public hygiene should be separated after the elementary stages are passed. Civilization is mainly specialization.

So much as this, nevertheless, is advisable; — viz. that teachers should use all reasonable personal precautions at the first sign of the coming of any infectious disease,— whether whooping-cough, measles, scarlet fever, pneumonic plague or anything else; and that cities, counties and villages should have competent sanitarians in charge of all public health problems. Teachers should advocate health officers and support their work enthusiastically and intelligently. The mind of every teacher should be appreciative of everything truly scientific.

The reasonable precautions to be taken, so far as they were known in 1900, were then taken. The present epoch is yet wiser; and in school and college, we are making ever more and more successful resistance to the invasions of infectious germs.

CHAPTER XVI

IGNORANCE OF SEX ABERRATIONS IN OTHERS

Cases 14 and 15

CASES 14 and 15 turn upon the same need: — that young women shall have a rational knowledge of sex-aberrations in defective and unbalanced men.

The first of these cases was that of a slender young woman teaching in a rural school with a zeal utterly oblivious of the real boys and girls with whom she was dealing. One of these boys was fourteen years old, of Italian race. She was blond Saxon, eight years older chronologically. He was in the Third Reader class. He would linger after school almost every day. At times, he was insubordinate, but usually he was amiable and dependent. Often, he dogged her footsteps to her farm boarding home.

Late one winter afternoon, he followed her from the village post office. Just what occurred thereafter will never be known. Her body was found in the woods some hundreds of yards from the highroad. She had perhaps tried to run away from him. At the trial, there was displayed a heavy wrench wrapped in flannel with which her skull had been fractured. Her clothing was badly torn as if in struggle. What was evident was that this boy had conceived a violent sex-passion for this young woman and meant to knock her unconscious though not to kill her.

She herself, of course, had never imagined that his

lingering about her and his excessive interest in her were due to the criminal instinct of lust ripening into assault. She knew nothing of the sex-life beyond the monthly illness of woman.

The second of these cases was that of a brunette in a city school. She hated the bachelor principal, who constantly begged her to marry him. It was, however, her custom to remain after school sometimes for hours correcting papers and preparing the work of the next day. In the city system, the rule prevailed that no salary was raised without the recommendation of the next higher officer. Being oblivious to all sex-phenomena, Case 14 tried to please her principal as a faithful teacher. That anything serious would befall herself was wholly outside the range of her imagination.

Of course, the personal loathing that she felt for the man and her excessive diligence as a teacher wore out her nervous strength and resistance. Her ruin followed. Worry had caused a devolution of the powers of rational self-control and of resistance to the will of another. One Friday evening she failed to return home. Four days afterwards her body was found embalmed in the basement of an establishment run by two physicians of the city. The principal and the physicians fled, but after weeks of search all three were found and brought before the grand jury. The evidence showed that the young woman herself had insisted upon the criminal abortion and that the man in the case had begged her to marry him. In this case, contrary to nearly all such cases, the man was of independent means, able to "live respectably without work," and the woman had a good home with parents of large means. Poverty had nothing to do with either of them. Blind lust and blind innocence explained the whole case.

This whole story (like the other) is fully reported in

the court annals. The Italian moron was duly executed; the two physicians and the principal got off on technicalities of the law, but, of course, left the city of their joint and several crimes, doomed to lifelong ostracism by the decent. The principal was a hypermoron, a first class fool; the dead woman was a highly intelligent victim of her own ignorance of a tabooed subject of fatal importance to herself.

There are modes of relief from such situations. The rural school teacher should have refused admission to the school to the overgrown moron; and quit teaching if the school directors did not sustain her discipline. The urban teacher should have reported the truth about the wooing of herself after school by the loathed principal to the city school authorities higher up, who would have transferred her to another school, or, better, have immediately discharged the man from service.

Case 14 was followed two years later by two similar cases, though without fatalities, and in these cases the men involved were committed to the penitentiary; it bore fruit for the general good, but at terrible price.

THE DANGERS OF FATAL INNOCENCE

Both of these young women,— they were twenty-two and twenty-five years of age respectively,— failed in knowledge of physiology and hygiene because they had never seen books or even articles or had oral instruction as to sex-psychology. The world is moving along better now. Experienced women teachers can apply general tests of abilities that distinguish idiots, imbeciles, the choreic, the epileptic, the feeble-minded, the moron, sullen, amiable and superior, from one another and from normal children, youth and adults of the several ages. Just now, we are going through an epoch of astonishment

over the prevalency of the venereal diseases and of their sequelae. In the years ahead, we shall awaken to the need of proper instruction in sex-hygiene to cure the sex-aberrations that almost invariably precede the vices and crimes due to irrational and uncontrolled sex-conduct.

In some cases, unhappily, the isolation of the few adult teachers among many children, or even of one teacher alone with youth among whom may be one sexually deranged, becomes an active peril by developing an inner morbidness that to be conquered must first be understood. Here wise teaching in youth is the true prophylaxis, short-circuiting experience and often actually preventing it. Every soul perhaps is the seat of all instincts and of all passions, the arena of the struggles of a universal human nature; but as we have been taught of old, we may anticipate in the constructive imagination the possible outcomes of alternative courses and by rationalizing our thought and emotion save ourselves from almost every trouble.

CHAPTER XVII

TOO SUCCESSFUL AND OBLIGING

Case 16

THIS little man was considered the very best teacher in a large city. Next to the city school superintendent and the high school principals, he drew the highest salary by a special rule of the board of education. It was so freely admitted that he was the one supremely competent class teacher that no objection was made to his being paid this exceptional salary. He was the model for all other high school teachers. This salary was half again higher than that of even the grammar school men principals. He was offered many college professorships but declined them one and all. Though he taught Homer in Greek and Virgil in Latin and the history of English Literature as his regular program; — being really head of these departments, he did not rank as head of any department. Literally, he could teach anything; any language, any science, any mathematics.

Also, he was the church organist for the most prominent of all the congregations in the city.

Also, he gave private lessons at his home in music or in languages or in anything else upon occasion.

His only recreation was caring for his horse and his garden. He never worked from July 1 to August 31; but he worked on schedule every day from September 1 to June 30. He had a large family of children.

At forty-eight years of age, "something broke." He had saved some money, and his wife took him to a private

sanitarium to recover. After six months, he resumed work. Then "something worse broke." The authorities then took him to a public asylum for the insane. He recovered and wished to go home. With an attendant, he went upon a train. While the train was going full speed, he quietly slipped to the rear car and jumped off. He was picked up dead. He was commonly called a suicide, but the truth was simply that he was "insane"; he didn't know what he was doing. Probably, the noise of the train hurt his feelings, and he wished to get away from it quickly. The medical men all agreed that "structurally there was nothing the matter with him." Functionally, Case 16 had these several difficulties, viz.:

1. His auditory tract was sore; worn out; he hated noise; could not listen any more.

2. His vocal organs and speech centers were worn out. He could not say what he wished to say, and refused to try.

3. His eyes were worn out, and he hated light.

4. The alimentary canal was too poorly nourished to be willing to function. From end to end, it was torpid and anemic.

Yet this little man had an excellent knowledge of human physiology; he often talked to the school very intelligently about it.

OVERDOING KINDNESS TO OTHERS

With a pale skin, though not thin, with beautiful blue eyes, with a fine, rich, musical voice, with exquisite manners, sympathetic, alert, honorable to the least detail, this good father and admirable teacher won universal social favor but misconstrued his relation to humanity. He misconceived, as do many teachers, the extent of his own duties to others. He was neither an egotist, working for

his own pocket or for fame and power, nor so conceited as to imagine that he could do things better than anyone else. On the contrary, he was humble and modest; obliging, too obliging. There is a line in Edwin Arnold's "Light of Asia" where the Buddha teaches: "Who needs me, commands me." Case 16 believed and practised this. He was anything but a weak man. He was perfectly willing to say "No," and stick to it; but he considered it his duty to do whatever seemed to need doing. All the advertising of himself was done by others. The trouble with him was not, as some imagined, the unintelligent indefatigability of the habit-minded hypermoron placed in a position above his mediocre abilities to fill. Case 16 was a natural humorist and understood himself as a mind quite well.

Nevertheless, he did not understand himself as a human body, and to him the commandment to take one day of rest in seven did not reach his will.

Nature does not build men to work three hundred and three consecutive days in the year for thirty years. If Case 16 had done no evening work five evenings a week and had rested all day Saturday, he might have lived the alloted span of three score years and ten. Half-Saxon and for the rest a mixture of half the races upon the British Isles, he failed in one item of what proved to be fatal importance;—knowing how and when to rest, to do nothing.

It was Walt Whitman who wrote, "I loaf and invite my soul. I sit at my ease observing a spear of summer grass." This spirit of knowing how to sit at ease comes by heredity to the naturally healthy. Others may learn it by experience. Those who have it not go insane or die young, or through illness, learn wisdom.

The need of daily leisure is perhaps the only excuse for smoking tobacco in pipe or cigar; this takes time and

thought and a measure of indolence. Of course, some hustlers while hustling smoke tobacco; but to enjoy a cigar, an idle half hour is the desideratum. Hustling through a good cigar is a contradiction in terms like bolting in single gulps a box of chocolate candies or talking out an opera.

A much larger proportion of women teachers than of men make the same mistake as did Case 16. They even drive themselves out of bed in the morning with a hot cup of clear black coffee. They drive themselves back to the classrooms in the afternoon with a hot cup of black tea. Case 16 did neither. But he did drive himself to duty seven days in the week with verses that are quite as dangerous to the health as tea or coffee. These are the verses that he often recited to his boys and girls; and the music of which he often played at church, viz.—

"Fill brightest hours with labor;
Rest comes sure and soon;
Give every flying minute
Something to keep in store;
Work till the last beam fadeth
When man works no more."

There was no therapy that could cure Case 16; and there never will be any. If he had been cured, he would have gone to work again just as hard. What he needed was a different set of ideas, early in life; and in this set of ideas, he needed one which said, "Six days, sunrise to sunset, shalt thou labor, at various tasks, resting betimes for meals, and not one hour more in any seven."

CHAPTER XVIII

A VICTIM OF TOO MUCH "SANITATION"

CASE 17

CASE 17 was one of the healthiest women who ever began to teach and one of the most beautiful and sensible. Still, she had peculiarities,— as who has not?

Among her peculiarities was a very great interest in health and sanitation, such an interest as usually leads a woman to become a physician herself or at least a trained nurse or at the very least a teacher of physical culture in the schools; but almost immediately upon her entrance into teaching, this lady became the special instructor of a class of incorrigibles.

She had a room in one of the finest schoolhouses then in existence in America, as scientific in all its appointments as the science of the period at the beginning of the twentieth century permitted. Of course, the room had a big supply flue and a big exhaust vent; and the building had great fans to drive the fresh air in and to draw out the foul air. Also, of course, the windows were never opened lest this should interfere with the ventilating system.

In her room for these incorrigibles, the teacher had a fine outfit of benches, tools, books, indeed everything that she thought of as desirable. There was upon her desk a beautiful, big statue in plaster of one who was then a famous prize fighter. Some of the boys greatly admired this work of art.

One day the teacher contracted a very heavy cold, and

saw the physician who was the favorite in that neighborhood among the teachers. He kept her out of school two days, and she promptly got well, very well.

Then she returned to school and to the usual program of her life. But she was soon sick again, and this time developed a bad cough. In a week, however, by staying out of school and obeying her physician, she was once more well and vigorous.

A month later, she became really very ill. It looked like a case of pneumonia; but it proved to be only a bronchial trouble with neuralgia of the face and neck. This time, the physician, after his patient had recovered, took the notion of going into the schoolhouse to discover whether or not something there was not the compelling cause for this series of disturbances.

What he actually found was this, in full, viz.—

1. The teacher had formed the habit of standing beside the statue when doing much of her teaching and that the statue was directly under the big draft of air that came into the room from the warm flue.

2. She went at each recess time into the basement and stood at a point to direct the play of her boys where it so happened that a strong draft blew down the staircase.

REFORMING THE SCHOOL SYSTEM

A little computation showed him that the teacher was being subjected three-fourths of her time daily to heavy drafts, one cold, the other warm.

He persuaded the school authorities to put a galvanized iron deflector over the warm air flue; he ordered the teacher to move her desk and statue to a different part of the room; he secured relief for her from being on duty at that point in the basement at recess time; and he illuminated the school architect and the board of education suf-

ficiently to abate partly the order never to open a window.

In that reformed schoolroom and schoolhouse, this teacher went on teaching for two years longer, with never the slightest difficulty. She then went to another city to take charge of a group of classes for incorrigibles and defectives, and when last heard from, six years afterwards, she reported that she had never needed to consult a physician for herself again. But she styles herself the "victim of too much sanitation," and thereby the means of saving weaker women from perhaps fatal illnesses.

Do not stand long in a breeze; it may bring on rheumatism or a fever, or worse.

CHAPTER XIX

OVEREATING

Cases 18 to 21

LET us call these four men Cases 18 to 21. All had the same trouble. One was under observation from the ages of seventy to eighty years; the second from thirty-five to fifty; the third from thirty-one to thirty-four; and the fourth the same. All are living at this date. Yet their trouble is often fatal. All take very good care of themselves under constant medical advice.

Cases 18 to 21 enjoy eating. Though criticized by others, they like to sit for hours and eat and eat, at first gorging, then slowing down. They are the hungry savages of a very ancient race, who have reappeared. They are upon the fine edge that delimits yet joins the muscular motor and the vital corpulent. Were they vital corpulent, they would have still more somesthesia and would know that their stomachs were full, and they would then automatically stop eating. Were they muscular motor, they would stop when fed and tread away heavily to heavy work; for then they would be kinesthesiac and would enjoy work even more than eating. But they have the qualities of both temperaments, some good, some bad. Therefore, Cases 18 to 21 overeat and underwork, yet make blood, more blood, lots of it. Their physicians say that they make too much blood. Also, their livers secrete too much bile. All of them have too swift digestions and too loose and frequent movements due to floods of bile.

Cases 18 to 21 have some days when their suprarenal glands, gall bladders and hearts behave badly; thereafter, they are low in spirits, often anticipating immediate dissolution in early graves. They get angry, but only on great provocation; being otherwise, generally, too good-natured for their own good. Their bodies victimize them. All are constantly under medical treatment and have at last learned much, though not complete, self-control. Their physicians keep them on fruits, toast and eggs, potatoes and other vegetables, soups and light foods. No milk or tea or chocolate, very little coffee, no tobacco. Cereals and meats are partaken of in small amounts but once a day. They eat sixteen or eighteen meals a week, not twenty-one, cutting out Sunday supper and several lunches.

On this basis, every one of them is a great worker, a hustler, very influential among men, women and children. Once in awhile, they take a meal away from home and fall down by overeating. Also once in awhile, they really do suffer from undereating, and their physicians increase the intake slightly for a few days.

In the years to come, either the physicians or the surgeons will discover how to cure these cases; perhaps even how in youth to prevent their development. Such men as these are physically out of place in schoolhouses and in college halls. Education is not the life for them. But for this very cause, they make highly valuable special contributions. All such cases are very human persons, full of feelings, passions, energies, errors; mostly kind-hearted, seldom persistent in endeavor but never feeble. They do not understand others well, but they usually pity them. Theirs is the temperament easily first for oratory and politics. Some women have it. Daniel Webster had it; but Theodore Roosevelt was full muscular motor, and Benjamin Franklin was vital corpulent.

This is the temperament for school principals and for college presidents, for pastors of great churches and for capitalists, who do not directly manage business affairs.

Unfortunately for themselves, men of this temperament are not usually self-conscious enough deliberately early in life to estimate the effects of a probable future environment due to any particular occupation; but setting themselves vigorously into one perhaps contra-indicated in their cases, they may become within a few years the victims of their own mistakes. They are not, however, so set in their own courses as to be incapable of correction by others; and any physician or fellow educator who turns the man of this muscular motor temperament out of the ordinary classroom either into executive work or into some occupation for which he is temperamentally indicated does both him and the world a true service. Sometimes the man saves himself by awaking to the meaning of the familiar lines of Robert Burns, and acquires the power to see himself as others see him. Here again a word to the wise may suffice.

PART II

THE RATIONALE OF HEALTH CONTROL

"The goal of human evolution seems to be a race of vigorous, healthy, well-balanced, whole men and women, who will have well-grown, fully developed, strong and tough bodies. Nature framed her bill of compulsory education long before man appeared upon the earth."

Man in the Light of Evolution. Chap. VII. TYLER.

CHAPTER XX

SLEEP

GENERAL STATEMENT

HEALTH-CONTROL should consider:

1. Sleep
2. Diet
3. Exercise
4. Clothing
5. Recreation and companionship.
6. Bathing
7. Occupation and associates.
8. Shelter
9. Habitat
10. Instincts, habits, ideals, etc.

This list is not in logical order but according to physiological rank for most persons.

SLEEP

Rule One in all hygiene is — *Go to bed early enough to awaken of one's own motion.* While the teacher, like most other persons including even "the independent farmer," is a slave to clock and calendar, he has control of the hour of bedtime (which many workers in other lines do not have) unless, of course, he teaches also in evening school. Every one should go to bed as a habit so early as to be sure not to need an alarm clock. Unfortunately, all through America parents are accustomed to awaken children, whereas no child should ever be awakened unless

the house takes fire! This habit of going to bed so late as to necessitate being awakened is ingrained by the childhood training. For our health, we should rely absolutely upon the periodicities of the human body to put us to sleep and to wake us up.

Again: — not less unfortunately, schools must open at 8:30 or 9:00 A. M., and teachers must be on hand thirty minutes earlier. Consequently, very many teachers are alarm clock bondsmen, not being wise enough hygienically to go to bed earlier and still earlier if necessary until one does wake up early enough to have ample time to dress and eat and to travel unhurriedly to school.

In importance, sleep far transcends all other physiological functions,— far. "Kind Nature's sweet restorer, blessed sleep." Those who do not sleep long, soundly and well are pitiable.

Sleep follows some very interesting laws of its own. In most persons, it is deepest (that is, the greatest external disturbance is required to awaken the sleeper to consciousness) about the end of the second hour. It is quite shallow by the seventh hour,— the "beauty sleep." In some others, however, it becomes deepest by the end of the first hour. In still others, it is very light until the fifth or sixth hour when it becomes heavy. Some persons, though quite healthy, awaken two or even three times in the night, but never lie awake. This means that sleep visits them in waves rather than in one long tide.

In all persons, sleep is from two to four times as deep in midwinter as in midsummer. In most persons, it is considerably deeper in midspring than in midautumn. In all normal persons it follows the rule of being lightest on hot nights and heaviest in below zero weather. It is much deeper on quiet than on windy nights. It is several times deeper on a cloudy night than when indulged in (as it often should be) upon a sunny afternoon.

CONDITIONS FAVORABLE TO SLEEP

In order to sleep well, all light should be screened and shaded out of the room,— even starlight,— and plenty of fresh outdoor air should be moving in it. Better still, sleep outdoors in a sleeping porch. (This rule holds for all persons except the anemic sedentary, the frail ideo-motor, some invalids, and the very aged.)

In winter, clothing upon the bed should be light in weight but very warm. It is well to have a hot-water bottle for the feet (or hot bricks or cut stone or the equivalent) when one sleeps outdoors in a sleeping porch. A fur robe is entirely proper. Some persons need and should wear hoods over their heads. But the very purpose of such a porch is defeated unless it can be kept dark until the proper time to rise. That purpose is to establish deep, long sleep.

Most persons sleep at least an hour too little and keep awake an hour too much. Try getting to bed an hour earlier. Better still, take a nap of an hour, changing all one's clothes, every afternoon.

There was a case of a man nervously wrecked from sorrow, trouble, toil and physical pain (too blind to read or to see human faces), kept going by doses of codeine, in despair from neuralgia of the face and from insomnia at night,— a man who went from physician to physician and grew worse,—but who suddenly set out to change his sleep efforts. He gave up his work, went to bed at eleven o'clock every morning; got up after an hour or so; went to bed again at four o'clock; got up after a while, and a third time daily went to bed at the proper hour of nine-thirty o'clock. He arose at six-thirty. For ten days, he drilled himself in this fashion without benefit. Then suddenly he found himself for a week sleeping heavily from eleven o'clock to one and even two. In just six weeks,

he was sleeping one hour every afternoon and eight straight hours every night; and his neuralgia was all gone, never to return. He lost his place, but he saved his life; and got a better place. Fortunately, his family humored him in this experiment, caring more to have the head of the house get well in any way whatever than to pursue the foolish American notion of "one sleep a day, and only at night then," as a universal law.

Truth is that the sleep-requirements of men are very much like those of dogs, of cats, and of cattle; not like those of horses. The dog sleeps, wakes and runs; eats, sleeps, wakes and runs some more; his natural inclination is to repeat the cycle three or four times daily. The natural inclination of man when freed from the chains of civilization is to have a three-cycle day; but he gets on beautifully with a two-cycle day, and usually well enough with one long sleep in the dark.

The way to stay out of a coffin is to stay longer in bed.

Of course, there are exceptions. Now and then a man sleeps too long and stays abed after perfectly awaking. The rule is to get up as soon as one is awake. Awakening takes various lengths of time for various persons; from three to fifteen minutes for healthy persons.

Any man or woman who finds himself taking his morning bath without being aware that he (or she) made any effort to get up may consider this as the finest evidence of being delightfully well. It should happen six days in seven in the life of every man and woman. An occasional need to rouse oneself to get up does no harm to the person provided that he is generally down to breakfast before realizing that a new day has begun.

A good deep mattress; nice, quiet springs; brass bedstead; and eiderdown quilt; none of these is essential to good sleep. A healthy person muscularly fatigued can make a good night of it upon a canvas cot.

It is disadvantageous for two women teachers to occupy the same room and wholly undesirable for them to occupy the same bed at night — even for twin sisters. Far better, the 7′x 10′ hall bedroom for one than the 14′x 16′ first story for two unless this front room has an alcove and wall space for two three-quarters beds.

Shut out drafts with screens, shawls, or draperies. By all means, close the hot air register. Never use a gas stove in a bedroom within an hour of going to bed; the free carbon monoxide is a direct enemy of the nasal and lung membranes.

In order to induce sleep, many teachers find it beneficial to take an evening walk about an hour before bedtime. It should not be too long, for its main purpose is simply to freshen the blood and quicken the respiration.

Men teachers who find it necessary to smoke a cigar or pipe just before going to bed should consult a competent family physician not less than fifty years old as to his experience with neurasthenes who smoke tobacco just before going to bed.

A case in point was in Paris. The patient was fifty-four years of age. He reported that he could not sleep unless he smoked for an hour or so before retiring. This man smoked outdoors. He had insomnia and heart palpitation at this stage but was of good weight. He was advised not to smoke after seven o'clock and to get into bed by nine-thirty. But he gravely protested. Seven months later, he was dead in total nervous collapse, not caused, of course, by the smoking but in no way cured by it.

Another case was that of one of the most famous of American educators. He had a slight attack of paralysis and limped accordingly with one foot. He took to drinking one cup of coffee at eleven-thirty every night as a night cap, a sleep wooer, a bracer against insomnia. Five

months after beginning this habit, a second stroke carried him away. He was then sixty years of age; body coefficient at death 2.6.

Nicotine and caffeine interfere with sleep more than alcohol does. No drug whatever should ever be taken by a working teacher after seven o'clock in the evening, not even chocolate. Also, it is very objectionable to eat candy, which seriously interferes with all sleep of adults by overloading the liver and kidneys with the unnecessary duty of secreting glycogen.

There are many pitfalls and snares into invalidism. Half of them offer temptations against sleep. Only the child, who naturally sleeps so well, and the childish consider an hour stolen from sleep really gained. The wise know that it may be paid for many times over.

MIND AND BRAIN TISSUE

Memory is a function of brain tissue. The psychologists give a score of rules to improve memory. The physiologist has one: sound sleep and plenty of it revives tissue.

Judgment is a function of brain-tissue. The psychologists are wise enough to understand that they can develop no rules to improve judgment. The physiologist has one rule: — sound sleep quiets and feeds the cells that think.

Teachers who desire good memories and good judgment will give their bodies plenty of sleep.

WAKEFULNESS OR INSOMNIA

As for those teachers who have already developed more or less tendency to wakefulness when they should be asleep, but who seriously desire to remedy the situation and are willing to do much in order to secure sound

sleep, the first recommendation of any hygienist should be, of course, that they should visit a competent physician for diagnosis and treatment. Insomnia of any extent or kind is a pathological symptom. Self-administered changes of regimen seldom do any good and self-administered doses of drugs generally do some harm.

The suggestions that follow are meant solely for teachers who find themselves wakeful once in a while,— who generally sleep well. Even good sleepers sometimes get out of step as it were and cannot sleep.

There are many varieties of these simple cases.

One variety find that they have slept perhaps an hour or two; wake up; and cannot go to sleep again. They roll and toss for hours. The trouble perhaps is a nocturnal heightened consciousness.

Sometimes, a bowl of crackers and warm milk solves the problem. There are various reasons why. The business of going to the pantry and getting the supplies and of warming up the milk is part of the explanation. Immediately upon getting to bed again, sleep comes.

Sometimes, getting up and taking five or ten minutes of light calisthenics with strong exhalations of the breath works the miracle of inducing sleep.

The milder business of muscular exercise of hands and feet and trunk in bed may serve the purpose.

Trying to read oneself to sleep; smoking; taking a drink of alcoholic stimulant; eating candy; counting to 1,000 or more: — not one of these is physiologically correct or likely to be beneficial. Often, they make the situation worse.

Another variety find that, much to their surprise, they do not go to sleep as usual at once after getting to bed. An hour passes, and they are more wakeful than ever. Sometimes, a warm bath (99°) helps such a person.

When the wakefulness is due to overeating or to an

exceptionally emotional evening, it is sometimes helpful to dress and go for a walk in the fresh air.

It is well to remember that a person who has the habit of going to bed at 10 o'clock is not likely upon going to bed at 9 o'clock to get to sleep the first or second or even third night even as early as 10 o'clock, for the body is not used to go to sleep until the habitual fatigue pressure has been set up. Sometimes, such persons do well to eat an apple or an orange.

A third variety of the wakeful are those who after sleeping (say) five or six hours wake up two or three hours too early. This is very unpleasant.

Often, a pint of not too cold water solves the problem.

Sometimes, ducking and holding the head in a pail of cold water until the skin is thoroughly stimulated solves the problem. Unfortunately women with their long hair cannot very well practise this mode of relief. They can, however, apply a towel wet with cold water at the neck and base of the skull and may derive immediate benefit.

Any person who is occasionally wakeful does well to feel the top of his head all over with the palm of his hand in order to discover whether or not any locality is notably hot. If so, that locality needs to be cooled down with a cold compress.

Also, it is profitable to feel the feet to discover whether they are cold or not.

A hot head and cold feet should wake anyone up. Soak the feet for ten minutes, if necessary, in hot water; and treat the head with cold water.

Some cases of occasional wakefulness are cured by having their backs well rubbed by some other person with a rough towel while they are lying face down on their beds. Such relief, of course, is available only to those who live at home.

Many a victim of occasional wakefulness feels for half

a day ahead that he will have a poor night of it. Almost every such case is quickly curable by afternoon rest with or without sleep and evenings of social amusement away from the place where one sleeps.

Still another mode of relief to such a victim is a week-end in another city or village or even in a hotel or at the home of a neighbor.

Generally the teacher who is a victim of occasional wakefulness suffers

(a) On Friday or Sunday night.

(b) On the day before an examination or exhibition.

(c) After some great excitement.

This is more or less according to the human lot. It has something to do with temperament.

It is far more serious to suffer from wakefulness without such causes than to suffer from wakefulness with them. The man or woman who wakes up or stays awake and cannot imagine why and who finds himself (or herself) repeating this should get the advice of one whose business it is to cure diseases, for frequent or permanent insomnia is itself a disease and leads to other diseases. An illness with no ascertainable cause may baffle even an expert doctor.

Heightened consciousness, hysteria, neurasthenia (so-called), fevers, other maladies, and insanity, all begin with wakefulness that the victim cannot understand. This symptom requires interpretation in connection with other symptoms that only a physician knows how to read.

CHAPTER XXI

DIET

LESS important than sleep but far more generally and frequently discussed (as it should not be) is diet.

Properly considered, this topic should include

1. Fresh air,
2. Drink, and
3. Food.

These three are the builders and rebuilders of the body.

It is far more important to breathe well than to drink fresh water and pure milk.

It is far more important to drink water and milk than to eat foods of the right kind, properly prepared for the table.

Food as diet is much less important than water and air.

But convenience of treatment and common custom place the topic of fresh air with exercise and place that of drink after food; and they are so placed here accordingly.

The essential features of a proper diet for the teacher who is an adult are several. Since all are essential, no one of them is more important than any other. The order in which they are stated is, therefore, immaterial.

1. For the maintenance of good health or for its restoration, it is essential that the body coefficient shall be put and kept within the normal limits of the sex, age, race and temperament of the individual concerned. It is absurd to assert that these normal limits of light and heavy weights in proportion to the height of one and all

shall be the same or even nearly the same. According to sex, age, race and temperament, the body coefficient of the various adult individuals who are well will range all the way from 1.90 to 2.75. This permits a woman of fifty years of the Saxon stock and muscular motor temperament, height 5 feet 7 inches to weigh up to 185 pounds; and it permits a woman of twenty years of Norman French stock, ideo-motor temperament, same height, to weigh down to 127 pounds. (This allows for ordinary indoor attire.)

To get within and stay within the proper ranges, one needs to eat amounts of food definitely ascertainable by chemical standards. These foods will have definite values. Potluck in this respect has been relegated to the barbarism of its origin.

The food needs of the teachers include these features, viz.—

1. So many calories of heat.
2. So many grains of muscle building protein.
3. So much of salts.
4. So much of acids.

The state of the weather, of the winds, of sunlight, and of humidity greatly affect the caloric requirement as also, of course, do the clothing upon the body and the health condition itself. In a general way, the typical woman teacher requires from 2,800 to 3,200 calories a day. A fair apportionment of calories between the three meals is this, viz.—

450	breakfast	
600	lunch	
2,000	dinner	Total 3,050

Or this, viz.—

500	breakfast	
1,500	dinner	
1,000	supper	Total 3,000

For muscle and nerve restoration, the daily needs of most teachers are comparatively light, running from 250 to 400 grains. It makes a deal of difference whether the protein intake is cereal or animal, the former being much less nourishing. Protein builds also the skin and flesh, and, of course, the internal organs.

Any protein can be torn down by the chemistry of digestion to supply heat; but it is a wasteful method and distinctly injurious to liver, kidneys and bowels.

For teachers, the protein intake should be mainly in the first and third meals of the day.

The various salts required should constitute perhaps one per cent more. These are essential to good digestion.

2. It is essential to remember that the alimentary canal learns how to digest the accustomed foods and the metabolism also has uncanny acquaintance with the familiar output of such foods when digested. While it is unobjectionable to experiment with new foods well reported by competent dietitians and hygienists and unobjectionable always to simplify one's diet (so far as digestion is concerned), it is straight science to know that health requires continuity of diet according to the seasons. Many and many a person declines into serious indigestion by indiscreet consumption of foods with which the alimentary canal does not know how to operate.

It is this which explains the distaste of Middle Westerners for the seafoods of the Atlantic Coast. Of course, they can learn through a summer how to digest such foods, but to change at once from cereals, meats, vegetables and fruits to fish, shellfish, crabs and lobsters for the main dietary is to invite disgust of appetite and rebellion of the stomach. Many a city man experiences a positive revulsion against a country table. Many an American cannot stand the dietary of a foreigner.

For a teacher, who must have a quiet interior, to ex-

periment with strange concoctions as ten o'clock suppers is doubly wrong. In the first place, the ten o'clock supper is wrong; and in the second place, the new concoctions are perilous. What is a strange concoction to one person may be perfectly familiar to another. Such is the principle behind the saying,—"What is one man's meat is another man's poison."

3. Variety within narrow limits is essential. What is variety depends, of course, upon the individual. But too narrow a diet is very undesirable; too wide a variety overtaxes the digestive ingenuity.

Four dishes for breakfast, and six or seven for each of the other two meals are enough for most teachers. Analyzed, even four dishes generally mean a dozen different varieties of food, as seen in this simple menu for a winter breakfast, viz.—

1. Oatmeal, sugar and milk and cream;
2. Lamb chops broiled, lean and fat;
3. Toast and butter;
4. Baked apple, sugar and milk and cream.

This meal has cereal and animal proteins, several salts, milk and cream casein and butter fat, and fruit acids.

The three functions of the liver are these, viz.—

1. Secreting bile.
2. Excreting uric acid, etc.
3. Storing glycogen (digested sugar).

The physiological interest in the case arises from the fact that the liver prefers the third function to the second, and the second to the first, and secretes bile only when it has nothing else to do and is itself well. An overload of sugar (starches, sugar, etc.) causes the liver to quit gathering up uric acid from the blood and making bile. The result may be a kidney disturbance because the overload of uric acid is shifted there, or "biliousness" because the bowels have no bile and become constipated, or "rheu-

matism," because the uric acid is left in the tissues; or any combination of these often accompanied by headaches, etc.

The way to treat the liver with respect is to keep down the elements in food and drink that either overload or annoy it.

1. Keep the sugar supply in the diet down below the danger point.

2. Eat little or no meat that contains uric acid. (Beef is the worst offender. White meat of chicken and pork have but little uric acid; and lamb and veal are usually quite free. Fresh meat is far better than old meat.)

3. Do not antagonize the liver with drugs in the guise of drinks and smokes,— alcohol, tea, coffee, tobacco. Tea is especially bad for the liver.

One who does not understand the internal organs usually imagines that the liver is a simple organ like the lungs or kidneys or stomach. It is as complex almost as the brain. It is really three organs. Annoying the liver is an easy and quick mode of suicide.

Quantitatively measured, 3 heaping tablespoonfuls of oatmeal, 2 heaping teaspoonfuls of sugar, ½ pint of milk and cream, a 3 oz. lamb chop, three large slices of toast, an apple 2½ inches in diameter, afford from 400 to 600 calories of heat and 100 to 150 grains of protein.

4. It is essential in winter for teachers to get an ample daily supply of hydrocarbons, the easiest source of heat and the best restorer of nerves. Woman teachers characteristically undereat such foods as hot meat fats from lamb, mutton, beef, pork, ham, bacon and even from chicken, butter, etc. The scientific objection to well done pastry is not that the hydrocarbon of the lard in it is not properly cooked for eating but that the carbohydrates (starches) of the flour are not sufficiently cooked.

The quickest way to get warm quickly from food in

winter is not to eat candy on the way home from school or in the evenings but to eat butter or peanut butter on toast or crackers; or else to drink two cups of hot water and cream.

A moderate amount of pure sugar in cold weather does no harm at all but an immoderate amount persisted in daily will often work as much havoc as whiskey or strong tea, though in a very different way.

5. It is essential to treat the liver with respect. The liver is the last great organ of the body to be developed in the history of the animal man. It is complicated and may be easily damaged by bad diet. It performs no less than three distinct and essential (not merely important) functions; but it can perform them only when the diet and the drink are *innocent of harm* to it.

6. It is essential to eat live, fresh cells in at least two meals a day. Pasteurized city milk has much of its life killed along with the too frequent microbes of disease. There are live, fresh cells in these articles uncooked, viz.—

Eggs	Celery	Dates
Milk	Apples	Figs
Nuts	Oranges	Butter
Lettuce	Grapefruit	Cheese
Tomatoes	Dried prunes	Peanuts

There are no live cells in salt or sugar or the patented table sauces and dressings, some of which are so powerful that they will kill a whole stomachful of beneficent live cells.

Just what vitamens are, no chemist has yet discovered. That they are, many scientists now believe because of the observed and verified results. Vitamens appear to be present richly in many uncooked foods such as milk and peanuts and thinly surviving in slightly cooked meats and in soft boiled eggs.

Any person who can influence his diet by making sug-

gestions at home or by buying meals *a la carte* at restaurants,— in other words, any person whose meals do not happen to him and victimize him accordingly would do well to arrange a two weeks' program of meals and to keep readjusting it according to weather, season, holidays, etc. There is not space here to offer a course of 1,095 meals for a year or even 21 meals for one week. Nor would any such course be good for more than a small fraction of persons in a small section of the country and then only for the city or rural teachers. Diet is personal.

Frequently, patients say that they have to sit a long time at the table before appetite comes; they eat a little from the first and second courses on principle. Perhaps, when the meal is done for the others at the table, they just begin to feel hungry. In nine times out of ten, habit or shame leads them to quit when the rest do; and unfortunately for their health and strength.

Taking a cup of hot water with a little salt in it a half hour before eating, lying down for a half hour before eating, and taking a ten minute walk before eating, each may help.

Parents who know nothing of human physiology and hygiene and consorts who do not understand the severity of the teacher's job often reprove those whose appetites come slow and either shame or order them to leave the table. This is good for the bank accounts of sanitariums and of coffin-makers. "For want of knowledge, my people perish," said Isaiah truthfully.

MENUS

Some persons like to know the menu before they sit down to eat; others like surprises within the limits of their tastes and experience; few enjoy experiments, very few.

A good Friday evening six o'clock dinner for a city teacher, woman age 40 years, sinewy motor, body coefficient 2., in April damp weather, might be this, viz.—

1. Potato-celery-milk hot soup (potage), (not too much), (potato well cooked beforehand; milk brought to boil), (alkaline corrective of toxins of fatigue).

2. With salted crackers or cubes of well toasted bread in the soup.

3. Boiled leg of lamb. Peas or beans. Carrots or parsnips. Rice cooked not less than four hours. Soda biscuits well cooked. Plenty of butter. Jelly or marmalade.

4. Salad of nuts, apples, fresh lettuce or fresh celery, oranges and grapes.

5. White cake (eggs in it). Blanc mange with milk and cream.

Time to eat,— not less than thirty minutes.

Total intake (not counting water drunk from glass) not less than one full quart, and preferably one and one-half quarts.

A good midwinter school lunch for a middle-of-the week day of a strong, healthy, vital corpulent woman of twenty-one might be this, viz.—

1. Half a pint or more of vegetable stew to contain at least one ounce of meat with potatoes, parsnips, onions, celery and tomatoes.

2. One baked apple 2½ inches in diameter.

3. Two thick slices of bread with butter and peanut butter.

4. Half pint of ice cream made with cream and two large cookies.

5. Glass of milk,— not less than half pint.

The intake should be at least one quart.

A supper for a delicate ideo-motor or anemic sedentary woman of thirty years, body coefficient 1.75 (who really

should not be teaching over three and one-half hours a day, mornings only) in the autumn on an early week day might be this, viz.—

1. Saucer of sliced oranges, not too much sugar, sprinkling only. Cut in a slice also of grapefruit. Pour on also a tablespoonful of grapejuice, red.

2. A proper (2 oz. or more) slice of roast beef to include a well-browned edge and some fat (area 2"x 6", thickness ¼ inch). Medium roasted. Potatoes thoroughly baked. (Preferably boiled and then baked.) Egg-plant fried. Tomatoes baked in crackers and butter. Thin slices of toast well-buttered (two or three).

3. Chocolate pudding. (Just enough chocolate to flavor.) Plenty of milk and cream. Sprinkling of sugar. White cake made with eggs.

4. A dish of salted peanuts, almonds, pecans, walnuts with raisins and dates.

The intake should be not less than one quart, drinking water not included.

7. The seventh essential in diet has been repeatedly stated above.— It is a physiological and anatomical sin to insult the stomach, by forwarding to it anything less than a bolus of food, and this bolus should not be within 3½ hours of prior eating. The size of the bolus must be sufficient to fill the stomach comfortably full of food, not mere fluid. The stomach of a normal adult male or female holds from one to three quarts of food, and works best at about one and a half quarts for the median average of persons. At the same height and weight and age and of the same race and temperament, the stomach of a woman is usually larger than that of a man; and should be so. Unfortunately, the civilized, city woman teacher usually has a stomach with thin, weak walls, and hence cannot always take a full bolus.

TOO MANY MEALS

There is one sure, quick way to get a mighty fermentation in the entire alimentary canal; this is, to eat a little breakfast, (that is, one biscuit and a cup of coffee); and a snack at recess (that is, a ginger cookie and two figs); a quick lunch (that is, a ham sandwich and a cup of tea); a snack at four o'clock (that is, a 10 cent ice cream "dope" on the way home); a nice little dinner, (that is, beef broth, a small prism of beefsteak, one small potato, two crackers, bread pudding and cream, after dinner demitasse of coffee, seven chocolate peppermints, total ¾ quart); and a bedtime stomach teaser consisting of ⅛ of an apple pie with a "good" doughnut that mother made. Just two days of this should set any self-respecting alimentary canal into gaseous rebellion. There are tens of thousands of stomachs of city women teachers in active eructation from such dietaries, which are helpful to physicians and undertakers.

8. The last essential is,— When not feeling well, drink water or orange-juice in water, and eat nothing. (Or ⅔ orange, ⅓ lemon in the water.)

Case. The man had been ailing for three weeks, when his alimentary canal at last rebelled. He had exceedingly important school duties. He was forty-five years of age, with the many duties of a city school principalship and teachers' association officer. Time, hot weather, end of year. His very mind had given way to fear lest he could not get through. But he did come through on this regimen, viz.—

No solid food for five days.

Closed and locked his office three quarter-hour periods daily and lay down on the floor. (Nothing else to lie down on there, properly so.) Quieted his circulation.

Every four hours, from 7 A. M. to 6 P. M., he drank well-watered orange or grape juice, one full glass each time.

From Monday to Saturday, he lost six pounds; but on Saturday his interior was fit for decent food in proper quantity, and he was well though weak. No medicine of any kind was taken. The following year this man ate three meals a day, total five quarts of food, and actually gained twenty pounds by quitting the many-small-meals-and-snacks-a-day error.

SOME DIETETIC DETAILS

A merely fried potato is unfit to eat. A potato, first boiled or baked and then fried, is excellent food.

The white potato steadily deteriorates through the year. The colder it is kept,— though not to be frozen,— the less it deteriorates. It is not good to eat in quantity after February. Its starch is steadily being made over as food for the tubers when planted in the spring. The older the potato, the more good boiling does it. Potatoes should be boiled, baked or roasted until they flake. Well-cooked potato under-skin is good food.

Rice cooked for four hours or more at or above boiling temperature is good food, for its starches have thereby been converted into diastase, which is immediately assimilable. There are good hospitals in which no rice is given until after it has been boiled twenty-eight hours, when it is chemically perfect for the invalid's stomach. Raw rice, that is, rice cooked less than four hours, is ready to ferment in the human stomach.

The less that cabbage is cooked, the better it is for human eating. Such vegetables, however, as parsnips and carrots should be cooked until soft, no more.

The best part of any bread as food is, of course, the

crust. Any bread is better for being toasted. The purpose of cooking yeast dough is to convert its starch into diastase; toasting assists greatly.

Heavy cake is characteristically bad for the health. Some light cake is very good. The former costs the digestion more to break it up into chyme and chyle than it yields. The latter generally is good when it contains no alum or free soda. Potatoes, rice, cake and pastry, as ordinarily prepared and cooked, contain unresolved starch, which is the enemy of the alimentary canal and of the liver. The vegetables that serve as filling or padding open out the walls and give the juices of the alimentary canal a chance to work.

The notion that some day the members of the human race will take their food in little capsules swallowed with water at a gulp shows total ignorance of the physical aspects of digestion.

In general, all meat should be well done but not over done. In general, the middle-aged animals have the healthiest meat. In general, meat eaters should beware of ptomaines and uric acid as the possible price for trying to get easily assimilated proteins of animals and fowls.

There are thousands of dishes known to good cooks of which many are worth eating, some indifferent, some bad. A dish arranged by a cook or even a dietitian who does not know human physiology and differential diagnosis may be well enough for a hotel or for the convalescent ward of a hospital; but though it may average well according to the chemistry of food, it may wreck some particular individual. Bacon and corn pone together are good for the man mountaineer of the Appalachian highlands and for the thinly clad, long-intestined colored field workers of the South in cold weather; but not one woman school teacher in one hundred should eat such a dish except perhaps in good skating weather of the Christmas

holidays, after actually being out of doors on the ice for hours.

Prunes in gelatin with whipped cream are a staple dish fit for most persons; but ice sherbet with sugar wafers is an amusement for the end of a meal and good for little else.

Many delicate eaters get most of their real nourishment out of their desserts. The Japanese begin their dinners with desserts and end them with soups, which would be a good program for some American teachers.

The alimentary canal is both a chemical laboratory and a physical machine. Peristalsis and digestion are reciprocal cause and effect. The digestion promotes the vermicular reflex; and the peristalsis moves the contents of the alimentary canal forward for further digestion.

The mouth insalivation of the chewed food is slightly alkaline; the stomach works with the food contents slightly acid; the rest of the process in the duodenum and upper and lower bowel is all accomplished with a distinctly alkaline content. All the process requires is characteristic activity of each part of the alimentary canal.

Every food has its own peculiarities, its values and its debits. In the whole process, salt, which is alkaline, yields hydrochloric acid for the stomach and sodium compounds for the bowels. Hence we need salt in most meats, especially in beef; and also there should be some salt in bread and other foods. Moreover, salt used in the cooking process itself plays strange pranks with the chemical results. In general, salt should be put upon foods after cooking; but there are notable exceptions such as bread.

Persons who use much salt should remember that salt is distinctly a heart stimulant. The blood has the normal saltness of sea water; slightly less than three per cent. When the blood loses all saltness, the heart quits work. Salt also stimulates the kidneys and other organs; and

irritates the bladder. We need just enough salt. In order not to err seriously, when in doubt, the safe thing is to eat rather less than more. Perverted appetites demanding salt, pepper, pickles, in excess, are pathological symptoms.

Vinegar, lemons and grapefruit all have sharp acids that when taken in excess interfere with bowel digestion. For the typical young woman who teaches, the whole of a grapefruit at breakfast is excess by half.

Eggs are most digestible when soft, boiled or poached. Raw eggs may be scarcely digested at all, serving merely as an emollient to the alimentary canal of the adult. Hard boiled eggs are difficult to digest in proportion to the length of being boiled after becoming hard; that is, after the albumen has solidified. Eggs fried on one side are more digestible than fried on both sides. Scrambled eggs, not burned or toasted, are good.

The yolk is slightly more nourishing than the white of egg, but it contains sulphur, which may make trouble for persons over forty years of age. Many who overeat eggs have facial and other skin eruptions. The alleged "medicinal" value of sulphur is nil. It may have a place in the pharmacopeia when prescribed for definite ailments by competent physicians; but as a general proposition, the person who has disagreeable results from eating eggs should cease to eat so many.

Fish, strawberries and tomatoes, one and all are harmful to some persons; and should be omitted from their dietaries.

Asparagus is capable of causing severe kidney and bladder pains, being an excessive diuretic.

Of the hundreds of fruits, vegetables, berries, etc., that may be classified as fresh foods, ripe watermelon is perhaps the least likely to do any harm or any good except as a thirst quencher. Canteloupes and similar melons,

when ripe, are appetizing but have very small food values. Pumpkins and squashes stand higher in the dietetic scale.

Beans and peas are rich in protein, very nourishing, distinctly difficult to digest, and to some persons injurious. They require far more cooking than they usually get.

Oatmeal should boil at least two hours in the evening before and should then be warmed over unless kept in a fireless cooker.

As for the prepared, ready-to-eat breakfast foods, they differ greatly in value. Most of them are really uncooked. Wheat is far better than corn, and corn is far better than rice as a breakfast cereal. In winter, oatmeal four days in the week is a wise rule; take other cereals for variety the remaining mornings.

An excellent breakfast and supper dish, of course, is toast-cream-milk-salt hot water, made as follows, viz.—

Bread ½ inch thin, lightly browned on each side, well-buttered.

Boiling water with salt in it poured over this.

Milk warmed to 150 degrees Fahr. poured on after this. Milk once boiled is constipating.

Cream over all.

Add a poached or a creamed egg if desired. (To cream an egg, begin cooking it in cold water. Bring water to a boil rapidly. Time required four minutes.)

As to fish, salmon contains the most nourishment. Of course, therefore, some persons find it indigestible. Spanish mackerel and bluefish are high grade sea foods. Canned in oil and cooked in butter, cod, herring, sardines, tuna, smelts, whiting, are nourishing foods. The fish oil in salmon and in other fish similarly rich is a direct nerve food. Trout, pickerel and eel grade high; perch and bass not so high as foods. Catfish and carp are only fair as foods.

Meats are of various values and debits to the human body according to their nature, to their condition, to their cooking, and to the amounts ingested at a meal and daily. Beef may be dried beef, steak, roast, pot roast, rare, medium, grilled, with or without gravy, etc., etc. It may be any one of a dozen cuts; bull, steer, cow, two years or nine. The same variety is true of mutton. A still greater variety is afforded by the pig. And a far greater variety, by poultry. As to game, it may be any one of a hundred varieties, cooked as many different ways.

Broiling, frying, baking, roasting, grilling, drying, basting,— what differences these indicate!

Rare beef from a healthy, well-exercised, grass and corn-fed two-year-old steer is one thing; probably good. Venison, canned and overcooked, is very different.

SOME CHARACTERISTIC FOOD VALUES

DRINKS

	CALORIES
Ordinary cup of coffee with milk and sugar	50
Cup of coffee, 1 teaspoonful of sugar and 2 tablespoons of cream	100
Cup or small glass of milk	100
Ordinary cup of tea with milk and sugar ½ teaspoonful of sugar 1 tablespoon of cream included	50
Ordinary cup of chocolate	150
1 teaspoonful of sugar	25
Cup ½ milk and ½ cream	100
1 teaspoonful of prepared cocoa per cup	50
½ pint of creamy milk (top of bottle of milk)	200
1 quart of standard Jersey milk (not pasteurized)	950

MEAT DISHES

Quantities such as are usually served in popular restaurants per person and as ordinarily prepared.

2 eggs, poached or soft boiled	280
1 lamb chop (large)	450
Ham omelet	450
Broiled ham ⅓ pound	500
2 eggs and ⅓ pound bacon	600
2 eggs, fried on one side, and ¼ pound ham	650
Hamburger steak ½ pound, fried in lard	500
Beef sirloin with mashed potatoes	450–600
Beef stew with vegetables ⅓ quart	400–500
Liver, bacon and potatoes	450–600
Fried sausage, mashed potatoes and griddle cakes (3) with maple syrup and butter	500–800
Corned beef hash	400
Corned beef hash on toast with poached egg	600

VEGETABLES AND FRUITS

2 baked potatoes	150–300
Lima beans or green peas	50–100
Baked beans (large helping) with pork	500–600
1 banana (ripe)	50–150
Baked apple (sugar and cream omitted)	100
8 stewed prunes (no cream or milk)	150

Most vegetables and fruits afford but few calories.

BREAD, CAKE, ETC.

3 slices buttered toast	200–300
Baked spaghetti or macaroni	100–300
2 crullers or doughnuts	100–200

Raisin pie (¼)	300–400
Pumpkin pie (¼)	150
Mincemeat pie (¼)	250
Chocolate cake (chocolate frosting)	200–400
Rice pudding (cream and sugar not included)	100–150
Cup of custard made with egg	150–300
3 griddle cakes (large) wheat, buckwheat or corn with 2 ounces maple syrup and butter	250–400
Breakfast cereals (milk and sugar omitted)	100–200

Wheat is first in calories; next corn; next oats; lowest, rice per unit of weight dry before cooking.

The calories in a personal service of fish, oysters, soups, jellies, and marmalades differ so greatly as to make general data almost worthless. Salmon is the richest fish on the general market; Spanish mackerel and bluefish come next; salmon is almost as heating and nourishing as mutton; oysters have but few calories. Soups run from clear broths, of no food value, merely appetizers, to stock soups, running as high as 500 calories per plate.

Two ounces of sugar are equal to 1 ounce of butter in calories with this difference, that 5 ounces of sugar in all forms are the extreme limit that even a healthy liver can manage per day in winter, while so far as the internal organs are concerned 1 pound of butter taken in the course of a day would be harmless, at most producing only loose motion of the bowels. Consequently, to eat ½ pound of confectionery in an evening, as some women do, is very harmful to the internal organs.

CHAPTER XXII

DRINK

THE more important drinks customarily taken in America are these, viz.—

City water
Rural well water
Cistern (or rain) water (usually soft)
Spring water (usually hard)
Artificially distilled water
Water, carbonated
Water, sweetened and flavored with ginger, roots, syrups, etc.
Spring water; carbonated, flavored with orange, grape juice, lemon, etc.
Milk, raw
Milk, pasteurized
Milk, boiled
Milk, skimmed
Buttermilk
Coffee of various kinds and strengths
Coffee with milk or cream
Coffee with sugar (or with both)
Tea, green, black, mixed
Tea, with milk or cream, with or without sugar
Tea with lemon
Tea and coffee, hot or iced
Cocoa
Chocolate variously prepared
Near-coffees and coffee-substitutes.

In view of the known characters of the teachers east, west, north and south, it is absurd to discuss the alcoholic stimulants,— from whiskey, brandy, rum and gin, from beer and ale, porter and stout, to the thousands of different wines. Few teachers drink alcoholic intoxicants. Moreover, whether we like it or not, the whole country is going for national prohibition, efficiently maintained. The teacher who " drinks " will be a law-breaker.

The strong objections to all stimulants and narcotics from tea and tobacco to opium and alcohol are these two: — first, they are flatterers and therefore deceivers; second, they are borrowers, who never generously supply or honestly repay, promise-breakers and traitors.

The little flatterer (a mild cigarette) and the great flatterer (morphine taken hypodermically), alike sit on the rim of the bowl of consciousness and tell us how well we are, how rich, how powerful, how admirable, and with what wonderful prospects! They silence memory. They quiet action. They simplify situations and destroy judgment. But they are by no means equally dangerous, partly because of the somesthesia that prevents our taking overdoses of some of them.

The little borrower, mild chocolate, comes with a little gift of his own — fat for the nerves, but he takes a loan of the future all the same and a side loan from the tissues, the so-called vital reserve.

Most persons drink far too little water, pure water. Six pints a day are not too many in any weather. Two quarts in ordinary autumn and spring weather serve fairly well for the muscular motor. In hot weather, a full gallon a day is all right: not ice water but pleasantly cool.

Tradesmen make money by selling foods; but in America, they make little or no money in selling pure water. In consequence, foods are advertised and orally talked up; but all the foods between the poles of the earth are not so important for physiological consideration as water. We could well spare a lot of time from the consideration of foods to the consideration of our drinks, especially water and milk.

Hot water before breakfast is good for some persons. Hot water at meals is good for some. Here and there is a person who cannot drink milk even after fairly trying

to do so. His system cannot learn how to assimilate it.

A little water in the course of the meal does no harm but washing all foods down,— slushing water down with every mouthful in gulps of swallowing,— is distinctly harmful. Only farmers and laborers, mechanics and soldiers, living out of doors, can stand long the loss of food-insalivation, which results from failing to chew one's food thoroughly but flooding it down with water instead.

A glass of water half an hour after eating is desirable for all. Some are harmed, others benefited by a glass of water upon going to bed.

There was a case of a teacher with rheumatism and an hypertrophied heart, greatly overworked and often by family circumstances robbed of sleep. She drank several glasses of water during the night; and lived twenty years longer than her several physicians told her family to anticipate.

THE WATER PSYCHOSIS

Why should not man rejoice in water? He came up out of the primeval seas after untold aeons of life in their waters. Salted water flows in his veins and lymphatics. He lived in water when in the womb of his mother for nine dark months. The life of man is in the water processes of his body. A human body is a congeries of watercourses, watermills, water laboratories, and water machines. Our joints, our eyes, our muscles move in water.

To think much upon food and to forget water is to be ignorant and thereby to invite pain, disease and death.

A few persons drink enough pure water, a few. Many persons do not know what good water is. Hard water, full of lime and salts, is not good drinking water.

Nevertheless, to make milk palatable and good for some persons, it is necessary to put a little lime or magnesia into it as a corrective of the acid in the milk.

It has been said that a man today is the beefsteak or the alum bread of yesterday. There is some truth in this. It may be said that a man today is the crystal water spirit of some divine hillside spring or the human body of a friendly and beautiful Alderney cow. Small wonder that the Egyptians worshipped and that Hindoos still worship "the sacred cow," or that the Greeks worshipped fountains. Why worship teapots or coffee cans like Russians or Turks? Let us resort rather to the cool woods and to the green fields for our drinks from pure streams, —when chemists certify their purity.

There was a case when an entire rural family, with a teacher as boarder, drew all their drinking water from a well not thirty feet deep in the middle of the barnyard where they kept forty head of horses and cattle. Fortunately, however, for them all, they preferred tea and coffee at their meals rather than water! Thereby, they secured boiled water.

Coffee is a different proposition from tea. It may be that chemically considered, caffein is the same as thein; but physiologically, coffee operates in different ways from tea. It is an antidote for tobacco and alcohol, which tea is not. It delays digestion; but it does not irritate the stomach walls. Coffee is prepared in two different ways in America: — as in good hotels and restaurants and in intelligent homes, and as in quick lunches with milk in the boiler, kept going for hours on end. Black coffee, without milk, not boiled too long, taken with but little sugar and in small quantity after lunch or dinner simply delays digestion and makes one feel comfortable temporarily. Coffee boiled with milk for an hour or more at breakfast as a quick stomach filler, two cups, puts

insoluble boiled and tanned albumin into the stomach and delays the digestion of what little food one has consumed. It stands by one for about two hours, and then lets one drop as through a trap door.

Coffee checks the restoration of tissue after the tearing down of work; it prevents larger growth. It is, therefore, much worse for persons with body coefficients under 2.20 than for those with body coefficients above 3, though sometimes it makes such persons lazy and self-gratulatory.

To a strong, healthy, sane man or woman, who sleeps nine hours a day and eats 3,000 calories of good food and drinks nothing but water or milk, who has a normal sanitary environment and decent work hours, there is no such thing as "hard work," not even firing a locomotive, cutting into human viscera, mending bad plumbing or teaching the children of aristocrats.

A little green tea properly prepared is one thing; a lot of black tea is very different.

Tea should be prepared as follows, viz.: —

Put some in a cup; pour over it boiling water, leave ten seconds, pour all this water out. Put on more hot water. Leave for two or three minutes. Pour this into a hot cup. Throw the tea leaves away. Since tea is prepared by being trodden upon by bare feet, there is no other clean method to prepare tea than to pour off the first dirty water, as every Chinaman and every properly informed tea importer knows. When tea is left to boil ten minutes, one gets a fearful brew of tannic acid, which tans the stomach and angers all the nerves. Black tea is green tea partially fermented and rotted in the sun. It is used only by those ignorant of its drug effects upon stomach and nerves or so addicted to it as to be unable to rid themselves of the habit.

THE VITAL RESERVES

Men and women drink tea to be flattered and deceived and to have their appetites reduced and thereby to save time, effort, foresight and expense. Tea, like every other drug, calls upon the vital reserves, which for practical purposes may be considered the energies in those parts of us not yet gone crazy or starved to inactivity. The vital reserves of the nerves are the muscles, the marrow of the bones, the fatty-tissues, the alimentary canal, the special organs. The vital reserves to be summoned to the rescue of an exhausted musculature are the brain and spinal cord, the marrow of the bones, etc.

The big borrowers are morphine, chloral, brandy.

Teachers, however, are used by only a few of these flatterers and borrowers,— the men are used mostly by coffee and tobacco, the women by coffee, tea, and chocolate. It would be grossly incorrect to grade these as follows, viz.:

Least dangerous — chocolate.

Most dangerous — tea.

The cause for saying this is in the old, old principles that quality and quantity and time and number make vast differences. Many a woman who complains because her father, son, brother, or husband smokes three seven cent cigars a day and drinks two ordinary cups of coffee and who alleges that they make him "nervous" (meaning unnerve him), herself drinks ten cups of coffee, tea and chocolate every twenty-four hours and eats a cake of sweet chocolate besides. They do her "no harm"; on the contrary, she says that they brace her up and enable her to do her "hard housework." The truth is that they make her housework seem hard.

CHAPTER XXIII

EXERCISE

NINE men and women in ten, who teach, upon being asked by some one else how to improve the health will answer,—"Take more outdoor exercise." The cause of this is the present fashion. A century and a half ago, such men would have replied, "Why, let the barber draw your blood!" Four centuries ago, they would have replied, "Stay indoors nights!"

When commented upon, the person who urges outdoor exercise as the sure means of improving the health and strength of some one else has quite an argument. This runs about as follows, viz.,

1. Outdoor exercise causes muscle waste, and hunger follows; it freshens the blood with oxygen, and the spirit brightens.

2. Hunger causes appetite and increases the consumption of food. An active day induces fatigue and good sleep at night.

3. Therefore, in order to eat and to sleep well, take outdoor exercise.

There are several difficulties with this as the regimen to improve health.

1. For an invalid or for a very tired person or for one with shattered nerves, more exercise, whether indoors or outdoors, is likely to prove the straw that breaks the camel's back.

2. Those who seem to need outdoor exercise are usually those who do carry a very large amount of seden-

tary indoor work. To give them still more work means advising them to burn the candle of life at both ends.

3. Even muscularly strong persons disinclined to sufficient exercise usually upon examination are found to have some positive defect or deficiency unknown to themselves that is the true cause of this disinclination. To ask such to exercise more is to ask them to commit suicide.

Many cases of each of these three kinds rush into memory demanding statement. One illustrating the third kind must serve here.

She was a young woman of twenty years, good weight. Dutch-Danish stock, muscularly strong, alert, persistent, but commonly accounted "lazy." She could work quietly and steadily all day indoors; — teach, sew, knit, cook, sweep. She was a fair but a slow walker. Examination showed that her heart went off beat, and that there was valvular leakage. One three-set tennis game or a winter afternoon of skating might have easily caused her death. She was advised to follow her own inclinations and to live low. Three years later, she had almost no heart trouble. She was advised to keep quiet. One year later, a careful examination indicated that the valvular leakage no longer existed: — she was well.

Of what value, then is outdoor exercise? Of very great value to most persons when rightly taken; but first every one who has any doubts about himself should be thoroughly examined.

BALANCED HEALTH TESTS

All this has been worked out very systematically by experts called physiologists and pathologists and is now upon a scientific basis. One of the tables involved concerns age, sex, pulse beat and blood pressure. It is too

technical for full presentation here, but all the principles involved are clear, definite and useful to any intelligent person. They are as follows, viz.—

1. The older one's age, the *lower* is the permissible range of maximum and minimum of *pulse beat* in health and strength sufficient for outdoor exercise.

2. The older one's age, the *higher* is the permissible range of maximum and minimum of *blood pressure* in health and strength for outdoor exercise.

3. In women, the pulse beat runs higher than in men.

4. In women, the blood pressure runs slightly lower than in men.

5. The higher the pulse beat, the lower relatively should be the blood pressure.

6. The lower the pulse beat, the higher should be the blood pressure.

CASES

By exercise is meant here, long, hard, sustained exercise. Almost all persons benefit by brief, mild exercise. The exceptions need medical care.

Woman 21 years old. Pulse standing 80. Arm blood pressure 130. Fit for exercise.

Woman 21 years old. Pulse standing 96. Arm blood pressure 160. Not fit for exercise.

Woman 21 years old. Pulse standing 52. Arm blood pressure 110. Not fit for exercise.

Man 55 years old. Pulse standing 65. Arm blood pressure 150. Fit for exercise.

Man 55 years old. Pulse standing 84. Arm blood pressure 200. Not fit for exercise.

Man 55 years old. Pulse standing at 50. Arm blood pressure 125. Not fit for exercise.

Woman 36 years old. Pulse standing 80. Arm blood pressure 128. Fit for exercise.

Woman 36 years old. Pulse standing 60. Arm blood pressure 145. Fit for exercise.

PULSES

In general, the range of a good pulse, when one is standing after being seated for fifteen minutes, is from 68 to 86; but when the blood pressure is low for one's age, a higher pulse is well enough. And when the blood pressure is high, a lower pulse is not alarming. A pulse is slowest when a person has been lying down for several hours; quickest, after fast running for a considerable distance. It may vary in a healthy person from 68 to (say) 100; in a young person, even higher. Or from 76, lying down, to 108, after running.

BLOOD PRESSURE

To take the blood pressure, requires the use of a blood pressure machine. The pressure is usually taken upon the upper arm, left or right.

The cause of the contrariety of pulse and blood pressure in health is that when the arteries are hard as in arteriosclerosis, the heart must pump hard and fast to drive the blood through. Therefore, a slow, steady pulse shows that even though there is considerable hardness of the walls of the arteries, the heart is strong and quite able to sustain the load. And a quick, perhaps even, irregular pulse with a low blood pressure, shows that though the heart is not a good machine, still it has fine support in the arteries. In either case, active, vigorous exercise is far more likely to do good than harm.

Many girls and some boys from sixteen years on have small internal organs, especially hearts. In some cases, at twenty or even twenty-five years of age, they disclose

poor internal development. In a few cases, they never improve. Such persons are unlikely to reach forty or even thirty years of age, for they are sure to offer but poor resistance to disease and to hard work. The cause of such deficiency was probably either (1) poor heredity, (2) underfeeding, (3) some children's disease, notoriously scarlet fever, (4) underexercise, especially too little play, (5) bad sleeping habits, singly or in some unhappy combination. After twenty-one years of age, it is improbable that the internal conditions can be remedied; yet this is possible in some cases.

With these several limitations and exceptions in mind, all the rest of the teachers of America should take exercise every day, preferably out of doors, and preferably in the main in plays and games.

SWIMMING

The finest of all exercises for any normal man or woman is swimming in the salt ocean. Of course, it is best to go swimming with others. Many counsels have been offered against staying in too long: but what is too long is a matter of personal idiosyncrasy. Fifteen minutes is too long for some: and three hours, twice a day, six days a week, is not too long for others. The test is simple. So long as one is warm in the water, and when upon coming out and rubbing down, one feels a strong pleasant reaction, one has not stayed in too long.

Next to swimming in the salt sea is swimming in fresh water that is not too cold.

Third is swimming in a gymnasium pool.

Swimming is the perfect exercise for every healthy man, woman and child, teachers included. It uses every muscle, while the water sustains the weight. It develops wind. It increases the strength of the internal organs.

Unquestionably, salt water is good for the skin. It does no harm to swallow a quart of it. And swimming develops courage and persistence.

The water psychosis is deep in the body of every human being. The man and woman who says truthfully to himself,—"I love to swim," has returned to the joys of the pristine world out of which he came.

Rowing and canoeing are splendid exercises. No one should get into a rowboat or canoe, however, who does not know how to swim well enough to keep above water a long time or how to swim well enough to swim ashore. Canoe paddling is superior to rowing for body development.

BALL GAMES

Football, baseball and basketball are good games for strong men; but not good games for many women. There are several considerable dangers in them to women:—1. Breaking the long clavicle. 2. Breaking the front teeth. 3. Wounding the internal organs, or 4, the mammary glands. Golf, however, is reasonably safe and is a good game for any adult. Some women school teachers do play golf on Saturdays.

Tennis is debatable. The question whether a woman school teacher should play it turns upon her own particular condition. For some women, tennis is good; for others, it is bad; for still others, it is good in some weathers and not otherwise. Most women who play tennis play too long, play too many games and do not play hard enough when they are playing; but there are many exceptions. Also, most women, when they take strong exercise, forcing perspiration, do not immediately thereafter take a mild shower bath as they should when possible.

The safe rule for a woman in doubt whether or not to

play tennis is not to play the game: this opinion is from the health and strength point of view.

There are some internal conditions, often found in woman, that make tennis playing, like rope skipping, absolutely forbidden. It is a good game to make the healthy and strong alert and vigorous. It is no game to restore an invalid or a convalescent to health and strength.

There are a score of run-around-the-ring games played by groups, most of which are all right for most teachers provided that they do not play them too long.

OTHER EXERCISES

Horseback riding is available to many rural teachers and to some city teachers. It is a fine exercise for most men and for some women; — far superior to driving an automobile or to riding in an automobile or to driving a team of horses or riding in a phaeton. It is a pity that the motor car has made so many roads unsafe for horseback riders. There is something in the character of horses that reacts against the motor cars. Perhaps, when the aeroplane is perfected and reduced in price, the riding-horse will be restored to his appropriate station as one of the three good animal friends of man,— the dairy cow, the watchdog and the riding-horse.

Walking outdoors every day a few miles and on holidays five to ten miles is good exercise for most women, but not for all. It is not good for such as have serious spinal curvatures or short, frail limbs and heavy bodies, or for very slender women with deficient body coefficients, or for those with weak hearts. Most women do not walk enough in the open air. They show this in their complexions, in their bodily postures when seated, in their walk itself or in their obvious psychical conditions. A person who walks much and who has learned how to

walk properly for a particular physique and temperament shows to the discerning the signs of being a good walker. The hips rotate slightly in walking, the knees give a little, the feet toe straight forward, the body and head are held strongly but not straight upright, and the arms swing but not too much. A good, quick walker gets over the ground fast without much effort.

Seated and resting, a good walker who is not ill looks strong and vigorous; he is not limp or lazy in appearance. He has a good neck and well set shoulders, breathes well, and his legs and arms take good care of themselves unself-consciously.

Few of the shoes for sale in America are good walking shoes. Such shoes should have four characteristics: — 1. The instep fits up into the arch of the foot snugly and comfortably. 2. There is abundance of room for foot and toe to spread. 3. The sole is of good weight and yet pliable. 4. The heel is not over one inch high and is broad, being preferably of live new rubber.

Indoor exercises are very numerous, from games and plays to calisthenic drills and work upon apparatus.

Every human being from childhood to oldest age should take some setting-up exercises every morning before dressing for the day. Five to eight minutes are enough. Every muscle should be exercised; — fingers and toes and scalp included.

Some persons take their exercises flat on their beds, which is all right.

TESTS OF EXERCISES

In taking these exercises, it is important to observe these points, viz.—

1. To move every muscle.
2. To work vigorously the neck and lungs.

3. To exercise the soft abdominal muscles thoroughly.

It is profitable to remember that it is more important to expel all the old air from the lungs than to get in new air, which part of the process takes care of itself.

And don't forget to drink one or two glasses of water.

Some persons use ½ pound or 1 pound dumbbells to advantage when doing the bedroom exercises.

There is a fine exercise in deep breathing that has been styled

TAKING SNUFF WITH THE PRESIDENT

According to the report, the Army surgeon-physician who had a President of the United States in his special charge was not pleased with his shallow breathing. Therefore, he invented this exercise.

Stand erect. Expel all the air from the lungs by vigorous deflation, using the diaphragm and intercostal muscles for all they are worth.

Of course, even a deep breather takes only one or two deep breaths on the average for every sixteen inhalations.

THE FINGER DANCE

This very pretty exercise is much superior to its title.

Rise upon the very tiptoes.

Stretch the arms far above the head, somewhat forward of the body.

Shake and wave the fingers and hands loosely upon the wrist; and continuously, while waving the fingers and holding the body on tiptoe, swing and sway three-quarters of the circle to the right, around to the left and back again several times.

For completely loosening the shoulder-blades under their muscle coverings on the back, no other exercise compares with this.

GYMNASIUM EXERCISES

For the gymnasium, both men and women do well to play volley ball.

The medicine ball is good for strong men.

As to chest weights, the Swedish ladder, the rowing machine and other apparatus, these should be employed according to the differential diagnosis. Most teachers have too weak backs, shoulders, and arms; especially their backs. They can hold them straight by effort; but their backs are not strong enough to stay straight without effort. Consequently, in the gymnasium, most teachers need work for the back muscles.

Some persons who publish advice to teachers say much about the "exercise of housework" and about the "exercises of farming, gardening, and animal husbandry." More teachers have been injured by farm work while teaching than have been helped physically by it.

IS HOUSEWORK HYGIENIC?

Could one select the particular tasks in these lines that make for appetite, for physical recreation and for muscle-building, there would be an argument for each; but housework includes much that hurts the health. Of course, the vacuum cleaner gets rid of the dust problem in sweeping. Making toast with an electric toaster does not exhaust muscle and nerve and takes but little time. Moving furniture about on housecleaning days is good for all, save frail persons. But shaking down a furnace and taking out the ashes, highly recommended by some persons who have had little experience in doing it and know but little of the typical condition of the throats and lungs of teachers, do not constitute a hygienic exercise, though they may be temporary expedients in economy.

Beating rugs and carpets outdoors in the city backyard or upon the rural lawn never yet delayed an attack of bronchitis in an old man nor a headache in a young woman.

The frail man who teaches in a high school gets, when hoeing corn upon a summer's day, a case of sunstroke much more easily than the husky farmer himself who has taken him for a summer boarder.

No woman who has a baby at home and who takes care of that baby nights is fit to teach school in the daytime. And young mothers who expect their teacher-husbands to care for the babies at night may be saving their own lives, but they are wrecking their husband's nerves. Truth is that a man teacher, his wife and several small children constitute a family unit with too few adults to protect the health of the two parents.

"Worn out by school work and by home care" would be the truthful epitaph upon the tombstones of many teachers, both men and women.

Few physicians marry until thirty years of age, or older. Many men teachers marry at less than twenty-five years of age. The two professions are much alike in their nervous pull. Law, theology, journalism, engineering, architecture, business itself; — none of these is like teaching in throwing very heavy burdens, that is, social burdens upon the nerves of young persons. Few young lawyers have large practices; few young preachers have large churches; few young business men run large stores and factories. But many young teachers operate large schools and draw salaries too small to keep household servants, even were such available singly. Household servants now hunt in duets and trios; single servants are out of style. When possible, most teachers should find means to avoid housecare and housework; and most of them should not try to do heavy muscular farm work in

the summer. The man who goes into teaching either should choose a wife of marked physical health and moral courage or else should not desire to establish a large family. These conditions are as inseparable from the profession itself as are the frequent movings of the minister of the modern democratic denominations from parish to parish. The public teacher belongs to his school; this is first.

Of course, in some family households, there are grandparents, maiden or widowed aunts or bachelor uncles, who greatly relieve the young parents and thereby simplify the problem of how to get as well rested at home as at a hotel or in a good boarding house. In such households, the teacher-members, who bring in the monthly incomes, should, of course, do what they can to carry forward the household work provided that their tasks do not reduce their school efficiency. This is both private good sense and public duty.

It makes some women happy to cook flapjacks for breakfast and to bake cakes for supper; it makes some men happy to broil beefsteaks any time; and it fills some men with a joy of accomplishment to run a coat of fresh paint over the dining room woodwork and floor. These esthetic, kinesthesiac persons should be encouraged to amuse themselves at housework. They really play when they appear to work.

DETERMINED EXERCISE

Exercise means a "shining forth." In true exercise, the spirit is released. Seldom does drudgery help the health; not even gymnasium drudgery. Yet this is only a general truth; and it has exceptions. The persons who have some definite muscular weakness (say) of the peripheral accessory muscles of forearm and hand, preventing

good handwriting, hand sewing and typewriting, piano playing, tennis playing and handshaking, should take definite exercises to strengthen arms, wrists and hands. It may be years before there is an adequate response; but usually the benefit is seen in a few weeks.

There was a case of a young man teacher with a fine mind and a natural disposition to teach. He slouched about with a hangdog look and was slovenly in attire. Examination showed a frail and lazy neck and upper spinal column. His head hung upon his strained, elongated back neck muscles. It was observed when he read that his chin choked down upon his collar and that his carotid arteries were compressed, reducing the blood supply to his head. Before his class, he brightened up doubtless from the influence of the adrenal gland secretions, released under the stimulus of the classroom effort.

He lived at home with his mother, a widow; and he did a lot of work there, including the making of bread and sweeping the floors. The problem was how to get him to hold his head straight and to make his carriage conform with his excellent character and ability. He considered the various head rotations and other movements drudgery. Nevertheless, being anxious to please the school authorities, he set out to endure the drudgery. It was nine weeks before he could walk unobserved and unself-consciously, with his head erect. It was twelve weeks before he sat and read with his head back and his book up. But he won. Incidentally, he had gained enough weight to show a body coefficient of 2.40, which was normal. Also, being able to look men in the eye, he became much more influential with teachers and pupils. After five years had passed, he was a city school principal. It took the drudgery of physical training to develop the appearance of manliness in him.

DAILY PROGRAM OF EXERCISE

It is a common question as to how much time anyone should spend in definite physical exercise daily. Only individual diagnosis can answer this question. But this in general makes a good program for the five school days, viz.—

1. Before breakfast 8 to 10 minutes; light calisthenics in one's own room.
2. Walk one mile before school.
3. Get a good airing for 5 to 10 minutes in midmorning.
4. Do likewise at noon.
5. Walk one mile after school.
6. Before getting to bed, either walk half a mile or take 5 to 10 minutes of light calisthenics in one's room.
7. Take 100 deep breaths daily.

On Saturdays, spend at least three hours outdoors.

On Sundays, spend at least two hours outdoors.

CHAPTER XXIV

BATHING

THE arguments about bathing, pro and con, are in general amusing instances of scissoring without definite issues for want of differential diagnosis of the individuals concerned, of the kinds of baths proposed and of the seasons of the year.

GENERAL RULE

Take 300 baths a year.

That is, omit four or five baths a month. Otherwise bathe daily. Or bathe twice a day in very warm weather and every other day in very cold weather.

But take 300 baths a year.

There are almost as many kinds of baths as there are human beings to take them.

The tub bath is the most common; — taken at night, hot. Generally, the once-a-week, hot tub bather stays in the water too long, uses too much soap, and fails to rinse off in clear water. No soap should be left either on the hair of the head or upon the skin.

It is undesirable to use a hot bath, save for definite therapeutic effects. It does quiet the nerves, may even cure definite local pains, and in some persons it induces sleep. But it is exhausting to the vitality notwithstanding.

The warm tub bath (96° to 100°) taken daily in the morning, with soap used locally where needed, when one stays in the tub not over ten minutes, and rubs down vigorously with a crash towel is less objectionable. It is the easy and lazy bath.

The cool tub bath taken daily night or morning (70° to 95°) is good for most persons.

Cold tubs (under 70°) are seldom good for anyone. Cool and cold tank swims are fine for all save invalids. The exercise keeps up the body heat. Fifteen minutes make a fair limit. Several swims a week are good for almost anyone.

Better than any tub bath is the shower bath, beginning warm and ending cold. Time,— two to five minutes. Persons with weak hearts or with severe neuralgia, however, should stick to the warm tub bath. The shower bath is especially good for youth and for young men and women.

Not many persons use too many local baths,— as for example the hot foot bath or the cold duck in a pail for a headache.

Local applications of very hot water upon compresses of cloths are highly beneficial for inflamed eyes, facial neuralgia, writer's cramp, colic and many other local troubles. Though hydrotherapy has a substantial basis of experience in cures and in relief, it is, however, not a panacea.

Quiet sleeping porches and variously equipped bathrooms are more important features in modern scientifically provided homes than even kitchens, and are far more important than parlors and libraries.

A scientifically provided bathroom has these features; viz.—

A sanitary, strong flushing water closet, white enamelled.

A shower bath in the corner.

A big, long enamelled tub flush with the floor.

A big, wide, low wash basin well set out into the room.

A foot tub.

Every washcloth should be washed in soap and hot

water every day, or used one day only and then laid aside for the laundry.

Every hair brush should be washed in soap and hot water every week.

The tooth brush (medium or soft bristles) should be used eight minutes a day.

The soaps used should have little or no free alkali. There are several good soaps. The notion that one may use so much soap as actually to wash the oil out from the oleaginous pores under the skin has just this much truth, that a bad soap is harsh to the skin. It is decidedly doubtful whether anyone ever did cause eczema upon one's face by using too much good soap and water; but bad soap will damage the skin. Washing often is no remedy for skin troubles. Seabathing, however, does help many skin troubles. The safe rule is to consult a good physician in such a case.

In some low states of health, one should not take either tub or shower baths. Few persons are so ill, however, that they do not benefit by local bathing, part by part, until the whole body is cleaned and refreshed. For a really frail person, a good way to bathe is to wet thoroughly an entire sheet in water at 105° to 110° degrees and to wrap this closely around one and rub; then take a warm, rough towel and part by part dry the body; neck, arms, chest, etc., etc. One may do this comfortably when seated upon a chair.

Many persons bathe in unventilated bathrooms, which is very bad. They stay in bathrooms 8′x 10′x 10′ three quarters of an hour and then wonder why their heads ache, and why they feel "punk" or "stuffy." Fresh air for the lungs, blood and body is more important even than a clean skin; it is even more a necessary of life than water; we need fresh air sixteen times a minute. During

the bath, there should be ventilation by the window or otherwise.

Many persons bathe in bathrooms kept too warm in winter. Seventy degrees is a fair temperature.

There was a case where a person who was frail steadily grew worse. Persistent and frequently renewed inquiries by the physician failed to disclose the cause. Finally, he guessed right. This teacher invalid took what she called a "warm bath" every night. Going without warning to the family home one night at ten o'clock, he found that his patient was taking her usual warm bath. A bath thermometer that he had brought along showed that the patient regarded 135° as only a properly "warm" bath. He ordered an 100° bath every other night instead, limited to ten minutes, and the patient began to pick up immediately.

Every bathroom needs a bath thermometer. Most persons are poor guessers as to temperature.

The fresh air bath is a fine practice. This is taken in order to let the skin breathe. The time desirable is from five to ten minutes daily. The more humid the day the longer should the bath be. Every skin needs aeration.

Every human skin should be "good leather." It may also be white and pink and fair and beautiful; but it should at least be substantial and have texture. Tissue paper is not a good standard for a human skin. In a general way, no other health sign is any better than the skin itself.

To develop and keep a good skin, take short, frequent water baths and daily air baths. A good skin flushes white and then red promptly in reaction to slight pressure. It has body and shows good capillary activities. The color and condition of the skin of the face below the eyes tell much of the truth as to the health of anyone.

CHAPTER XXV

CLOTHING AND FOOTWEAR

SCHOOL teachers make no worse errors in personal hygiene than their characteristic errors in attire. We in America are in the north temperate zone; and save in Florida, upon the Gulf Coast and upon the Pacific Coast, we have the winter with which to contend. We go to and from our work in cold weather for a period of from three months in Tennessee to six months in Maine and Michigan; but at our work, we are living in warm weather again, as we are at night in our homes.

Perhaps after we become civilized, we shall find a way to build our schoolhouses with dressing rooms, in order that we may put on completely different sets of clothes for the several hours in the warm indoors.

Except outdoors in winter, no one should ever wear heavy underclothing; but outdoors, frail persons may need woolens above porous knit underwear.

Men err by wearing heavy woolen underwear throughout the winter fourteen and sixteen hours a day, which is bad. Women err by wearing thin cotton and linen underwear even outdoors with the thermometer at 10 degrees and a wind blowing, which may be fatal.

The schoolroom should be at from 62 degrees to 68 degrees Fahrenheit temperature. Absolute uniformity is undesirable. A variation within every hour of at least ten degrees, never going above 70°, is desirable. We should swing across 64° or 65° several times every school day.

But when the temperature is 65°, woolen underwear is too warm; it prevents the skin temperature nerves and

cells from operating well. Many and many a man teacher lives from 8.45 A. M. till 11.45 and from 1 P. M. to 3.45 inside of a suffocated skin. It may be that his own home is also warm and comfortable at 68° or possibly even 72°. Still worse, it may be that he sleeps in heavy night garments and under thick, heavy and hot bedclothing, in a room kept up to 65° through the night. Small wonder that so many men teachers die of tuberculosis, pneumonia and bronchitis. Their skins have never had any chance to relieve their lungs in the work of proper temperature regulation of the human body.

With the woman teacher, it is the other way around. Desiring to be fairly comfortable at school and at home, she dresses lightly as to underwear, and relies upon her ability to stand being frozen on the way to and from school. Truth is that because a woman from sixteen to fifty years of age, unless tightly corseted, has a better heating power than a man, she can make a dash for the schoolhouse and for the first five or ten minutes on the way really be fairly comfortable even in zero weather. She pays for this by being cold for the first half hour or so at school and again at home. She simply will not wear such heavy underclothing as a man can stand for a period of time and not die because of it. Nevertheless, our women teachers pay for being too thinly clad outdoors by acquiring another trouble; besides tuberculosis, pneumonia and bronchitis, they get tonsilitis.

Only old persons, past fifty years, with wearing out lives and lazy skins, or invalids with poor metabolism should wear heavy woolen underwear; and even such persons should wear porous knit garments of cotton or linen next to the skin. The worst underwear ever invented for indoor workers has a soft nap that mats against the skin, holds the wet perspiration and suffocates the pores.

For healthy, vigorous persons, there is only one kind of underwear; porous knit of cotton, linen or silk. When one suit is not enough, wear two suits. When two suits are not enough, wear one suit of porous knit and a thin hard woolen or silk suit over this. If these two suits are not enough, only a physician can solve the riddle.

Most men wear not only woolen underwear but also heavy woolen suits for outer wear. They are dressed indoors as for an Eskimo igloo of ice lit by a hole to the sky in daytime and ventilated thereby.

Many a case of insomnia is directly due to being overheated all day long.

Since teachers cannot arrange to dress according to the real weather, outdoors and indoors, from hour to hour, it becomes expedient to approximate a correct solution for the problem.

1. Wear light or medium underclothing, preferably, porous knit. Never wear woolen underwear in school unless old or feeble or frail.

2. Wear medium weight outer garments.

3. In winter, wear either (a) a medium weight cloak or overcoat with a sweater under it or (b) a heavy cloak or overcoat, even of fur. (A fur cloak for a woman or overcoat for a man is suitable only for excessively cold weather; below zero; or for riding purposes; a fur coat is not a walking garment for any above 10° weather.)

For outside wear, one really needs a choice of at least four garments, viz.—

1. A light weight spring or autumn coat, of moderate length.

2. A heavier weight long winter coat.

3. A short heavy weight walking coat.

4. A sweater of good weight and length, no arms.

Of course, various other garments may well be added. Properly cared for through the summer against the moths

and dampness, they represent no greatly increased amount of cost, for they share the total wear and tear; and they save bills of doctors and dentists. Those who do not keep warm, who do not adequately protect themselves from exposure, are the profitable patients for physicians and surgeons of all kinds.

There was the case of a moderately healthy man who upon an autumn day sat for four hours by an open window in an electric traction car without an overcoat. The next morning, he had (1) an inflamed left eye (the side toward the breeze from the window), (2) facial neuralgia; (3) three days later, he had bronchial pneumonia of the left lung. It required the services of an oculist (2) a dentist; (3) a physician; (4) a trained nurse for four weeks to get him well. He lost one month's wages and paid more than two hundred dollars for medical attendance. When you go riding next time, put on an ulster with a high collar; or don't sit by an open window in a trolley.

The true purpose of clothing is to keep the body at normal temperature at all times. This is very simple. It is in truth so simple that few persons give any consideration to it. If we lived outdoors from 6 A. M. to 9 P. M., we should need in the north temperate zone (save in the extreme heat of summer and the extreme cold of winter) usually to make three changes of clothing daily, viz.:

1. Warm clothing from 6 A. M. to 10.
2. Less clothing from 10 A. M. to 5 P. M.
3. Warm clothing again till 9 P. M.

CLOTHING MATERIALS

Really, we need warmer bed-clothing from 1 A. M. to 6 than in the first few hours of sleep when the body heat is higher and steadier. Many persons find it desirable to

spread over the foot of the bed an extra blanket that may easily be drawn up even by a sleepy person, not half awake, who feels cold at 2 A. M.

For materials in clothing, the human race has developed five main supplies: linen, cotton, wool, silk and skins with and without fur. The ancient civilized peoples about the Mediterranean Sea got along with linen textiles for thousands of years while our Teutonic ancestors about the Baltic Sea and our Keltic ancestors in France and the British Isles kept themselves tolerably comfortable in skins. Only modern man has used to any considerable extent wool or cotton or silk.

The effects of these five materials upon the health depends, of course, to an extent upon their manufactured condition. Still, there are inherent qualities in each not wholly changed in manufacture.

In recent years, it has become the style to line men's overcoats with fine dressed leather, with the skins of rabbits and hares (whose pelts have been stripped of fur to make the felts of hats); or with the skins of lambs, kids, etc. Such a skin-lined coat shuts out the wind without being so excessively warm in mild weather as a coat lined with muskrat fur. It does not, however, ventilate so well in quiet air as does an overcoat with a woolen lining.

A woman's coat with the fur outside is warmer, weight for weight, than a man's coat with the fur inside. It turns the wind better to wear the fur outside.

A fur cloak or overcoat in the north is not an extravagance even though it represents a considerable capital outlay, for it lasts many years. But it is not the first coat to buy, for it serves well only in bitter weather.

Every teacher should have a raincoat in good condition; rubbers and arctic overshoes; and two umbrellas, one for home, the other for school, at each end of the route.

SHOES

Much has been written and spoken about shoes with low heels for women. It is one of "the 101 anatomical peculiarities of women" that characteristically their feet have higher arches than have the feet of men of respectively the same race, stock and breed. A foot with a high arch requires a correspondingly high heel. Of course, the fashionable very high heel is an outrage to the anatomy of any foot, and the woman who wears it deserves all the backaches, headaches, and other discomforts that it properly causes; but the "low, broad heel" of the conventional ladies' magazine article on "hygiene for women" is only for the few women whose feet have low arches.

A low arch is not the same thing as a flat foot; a low heel on a foot with a high arch will help to cause a flat foot, that is, a broken arch. The most important of all features in being fitted with shoes is that the new shoe shall have a properly built instep to fit one's own foot and to support it strongly. Very few shoe manufacturers make shoes that fit the human foot as it really is. The notion that a broad, flat shoe with a low, broad heel is meant for one and all belongs to the museum of hygiene myths.

It is an excellent rule never to wear the same pair of shoes all day two days in succession. Any shoe after being worn one day needs to be rested by wearing a different shoe every other day. Upon this plan, two pairs of shoes will wear as long as three, when each is worn daily until it gives out. Nor should the two pairs for ordinary daily use be on the same last or of the same material. They should at least be somewhat different to rest the foot.

For teachers, there is nothing in wearing waterproof

or patent leather shoes for daily ordinary life. Such leathers do not ventilate the feet.

There was a case of a teacher who particularly fancied leather-lined, heavy shoes, which he wore for two years. In the spring of the second year, he developed a skin disease between the toes that was checked by special treatment and by wearing thereafter very light shoes; but neither physician nor surgeon, neither chiropodist nor hydrotherapist was ever able to cure the disease. He tried seabathing, sunbathing, and various ointments; he had his toes and feet skinned by experts; to no avail, beyond arresting the further progress of the disease.

Many foot troubles can be cured, while practically all can be alleviated by wearing shoes of the right kinds and by changing them frequently. It is well to keep in use not less than a half dozen pairs of shoes.

Headaches and many other pains are often caused by too tight, even airtight shoes, and too heavy shoes. Always wear at home either very light shoes or slippers.

It does not take much reflection to realize that the human foot was meant to go bare; and that while one cannot go barefoot in our northern winters or in polite society or upon modern streets, still a light foot is the ideal. Light shoes often wear longer than heavy ones. The same reflections apply to socks for men. But few women now wear heavy stockings. Some men, however, like heavy socks to soften the feeling of their shoes. This is bad for the feet, stimulating excessive perspiration and making them tender.

COLLARS AND BELTS

Some men wear too high collars; others wear collars that are too tight. Such collars are very bad for the thyroid gland and for the carotid arteries in the neck.

A hygienically proper collar is low and roomy; a 14-inch neck requires a 15½-inch collar. Soft collars are far better for the neck circulation than the modern stiffly laundered collars. Soft shirts, of course, are more comfortable than shirts with stiff bosoms. Comfort contributes greatly to health.

The same principle applies to the necks of women. Some young women wear dresses and waists cut altogether too high in the neck, and a few wear them cut too low. Neither constant sweating nor constant chilling of the outer neck and throat ever did any one any good.

Some men wear too heavy vests, and many women wear too tight corsets. Any compression of the liver is bad. Often an autopsy shows a liver distorted and almost separated into two parts from tight dressing in early youth continued until diabetes or cirrhosis has carried the patient off. And more than one stomach, instead of being horizontal, has turned vertical in self-defense. And very many diaphragms and bases of lungs are bleached and almost atrophied for the want of use sixteen hours a day. Tight corsets and tight belts will bring on death as surely as a noose about the neck, though not so quickly. They are especially dangerous to the persons most inclined to wear them,— the corpulent. To wear tight clothes is one way to insure that a fat person will get fatter. Tight corsets, belts, vests, waists, coats are active assistants to pneumonia, to tuberculosis, to heart leakages and hypertrophies, to vertigoes, to diabetes and to stomach disorders of various kinds.

HOW TO WEAR CLOTHES

How to wear clothes is more important than how to buy them or how to cut, fit and sew them. Dresses and suits of clothes should not be worn over two or three days consecutively, but laid aside every day or so to aerate and

to be shaped again. They should be put on right and worn right. Many persons do not know how to put on and to wear even the clothes that fit them. As one result, they allow their clothing to pull them out of form, to draw them into bad postures, even to encourage spinal curvatures.

It is hygienically a fine thing to get home from school at 4.30 P. M. and going directly to one's room, to change every stitch of clothing upon the body even when one has no time to lie down and rest one's spine for a half hour or more, as every woman should do in order to live long and happily. When this cannot be done, at least take off the upper garments and rest the neck and shoulders.

Many pains are directly due to wearing too heavy a weight upon the shoulders or hips for too long a time without rest and change. No two coats pull quite the same way. A change of pressure often relieves one greatly.

Contrary to the popular notion about hygiene, a good walking outfit, heavy dress, short, with heavy walking shoes, "a sensible costume," is not at all the outfit for the schoolroom. For ladies, silks and hard twisted goods to turn the dust, of light weights; the dresses well down over the high shoetops, not too long sleeves, made easy about the neck and throat, should always be chosen. A schoolroom is a working room like a ladies' sewing room, a gentleman's library, or the family sitting room; it is not like a hunting lodge in the woods or a blacksmith's shop.

COLORS

Both men and women should choose for colors goods that make them cheerful.

Blue in almost any shade or tone is generally acceptable. Some shades and tones of red are agreeable.

Fresh browns in some shades are pleasant, though few

browns are ever attractive except in furs and in velvets. Soft greens are winning.

Greys are favorites with men and olive drabs have recently come in because of army popularity. They do not show dust; but greys and drabs and most browns are melancholy.

Unless brightened up with trimmings, neckties, ribbons in fine colors, all blacks are taboo for the schoolhouse. To one in mourning, black and white are a forgivable combination. Children are not so hard hearted as some imagine, and they appreciate true sorrow at its worth.

Recent scientific tests show that a black cloth holds the actinic rays of sunlight and is therefore warmer in winter outdoors than a white cloth. Red also is a warm color. All blues are relatively cool.

Nevertheless, generally, the garments of young and middle-aged teachers should be chosen primarily to express joy in life, even gayety. A public school staff of men and women all dressed in colors defensive to the disclosure of dust is inappropriate and should be transferred to the care of the public morgue where its gloom befits the scene. The teacher who is happy and who looks happy is the one for happy children and youth.

Colors indirectly influence the health. Here individual tastes play their part. Blondes like pinks and blues and brunettes prefer purples, violets and yellows. The teacher of Swedish and Saxon children should remember this; and the teacher of Russian Jews and Italians likewise. The colors worn should fit the personality of the teacher. But only very old teachers look right in the sober, dignified colors.

Of course, some persons are blind to colors as some are blind to forms. Some are deaf to tones and pitches. But the generality of teachers understand these matters as also do most children.

Even flies respond to color, deserting rooms papered in some colors and lit through globes of such colors.

Invalids are happier in rooms of some colors than of others. Delicate colors are, of course, the finest; but they should not be so delicate and fresh as to be characterless.

Often, mixed and plaid colors go well in the schoolroom. Perhaps, color is a matter of indifference to some healthy persons, but it certainly is not a matter of indifference to most persons who teach school or to most children who attend. The white, light summer dresses are attractive to all in the appropriate season. Teachers who wear ugly clothes are not generally the ones who are popular with the children.

To make esthetic persons happy, the texture, which gives a feeling to the touch, makes some difference. There are harsh cloths that, notwithstanding beauty of color and of design, nevertheless do not feel right but make one uncomfortable because they irritate the fingers.

Even the shirts of men that show only the cuffs and the small patch of bosom at each side of a four-in-hand necktie should be selected for cheerfulness and peace of mind as much as the neckties.

Sometimes, the garters or stocking-supporters are uncomfortable; more than one man has a lame neck because his suspenders do not give as they should to the movements of his body.

In winter, the teacher needs warm gloves, wool or fur lined. Women teachers should use good fur muffs. Wastage of heat from the hands is especially to be avoided by persons past forty years of age, whose livers are never again to be as active as they were once.

The purpose of attire is primarily to enable one to be comfortable always; indoors and outdoors; morning, noon, evening, midnight; whatever the season; whether

the sky be sunny or cloudy; no matter what wind blows or fails to blow; in dry weather and in wet. Health requires comfortable clothing. A person without the sense of bodily comfort and discomfort is unlikely either to live long or to be glad of living at all. This somesthesia is to be developed as an essential aid to strength, force and health.

The clothing should not pull across the shoulders and induce spinal strains, or confine the lungs from properly expanding and induce yawning from insufficient aeration of the blood, or stop the circulation in the lower limbs, or in any way or to any degree cause one to feel immediate irritation or toward the close of the day any special local fatigue. To clothing for social propriety and for personal adornment, women pay altogether too much attention; and to clothing at once respectable and that will wear well, men pay too much attention; and both men and women think too little of the first value of clothing, which is to protect the body against the weather and to promote the physical well-being thereby.

CHAPTER XXVI

PERIODICITIES, INCLUDING MENSTRUATION

THE PULSE

NO discoveries respecting the physiology of man are more important than those of the periodicities; the ebbs and floods of the bodily life. We have long been familiar with the periodicity of the blood in the pulse. We know that the pulse runs in healthy persons anywhere from 50 to 90 beats a minute; to even 150 after a 2-mile run by young athletes. We have fixed upon 76 to 80 beats as "standard," knowing that wide variations are permissible when the blood pressure is countervailing.

The heart, then, is a periodic organ, a governor upon an engine, a timekeeper.

Reading the pulse is a fine art. The expert diagnostician tells much by the pulse,—chills, fevers, strokes, faintings, fears, anemia, and many other health conditions report themselves in the pulse.

There are a dozen other periodicities.

THE DIURNAL PERIOD

Sleep is a periodicity. Man is meant to sleep from dark to dawn and to nap after breakfast and noon-meal. His pulse normally betrays this. There are many other symptoms also that show why we should sleep oftener than once daily. The variability of the blood pressure through the day shows this as well as the pulse.

The person who says,—"Oh, I can never sleep in the day time!" and the one who says, "Why, if I take an

afternoon nap, I cannot sleep all night without a break!" are asserting that by American habit and American parental indoctrination their ancient, instinctive sleep-periodicity has been broken and that a heightened consciousness, a marked brain activity, has supervened.

THE MENSAL PERIOD

A third periodicity is equally well known and by women generally better understood; the 28¼ day moonmonth ebb and flood. This is a hundred times as strong in women as in men and is recorded in menstruation.

In this 28¼ day period, strength and vitality run a cycle. Within the five days of normal menstruation, there is an ebb usually lowest through the second day. Two days after the menstrual flow, there is a marked return of vigor, which runs to a climax, varying in individuals but usual about the eighth or tenth day. Thereafter, the strength runs down steadily. Many women are quite weak and feel discouraged for several days prior to the menstrual flow. The whole period can be definitely measured and the stream of vitality at its various heights and depths can be duly recorded.

Any physiologist looks for considerable depression in any woman just prior to the monthly illness and throughout its term and for considerable elation for the ten days thereafter. It is, of course, within these ten days or so that the wedded woman conceives the child. No woman of good sense anticipates feeling "fit for anything" more than twenty days in the month; nor is such a woman surprised by feeling unequal to the tasks of life at least two or three days of the month. Such experiences are strictly normal. Fortunately, the tears and fears threaten her for but a few days; and joy and gayety quickly return to rule for most of the time. Woman is born to vastly

more trouble than is man; but she has vastly more power of recuperation.

This same moonmonth periodicity affects men, though but slightly. There is, of course, no such accompanying phenomenon as comes in the life of woman. But even a man has every four weeks or so a week of comparative dolefulness; and should govern himself accordingly. In this fourth week, he is especially liable to catch cold and to feel blue and to be unable to work vigorously because his inner fires are burning low.

Between the diurnal sleep periodicity and this mensal periodicity, there intervenes the hebdomadal (seven day) periodicity, which has been the natural law basis of the Mosaic Commandment of work six days and rest the seventh. Unfortunately for religious purposes, the true succession on natural principles is as follows, viz.: 1st. week 6 days — work; 1 day — rest; total 7 days. Repeat in all 20 times. Then 17th week 7 days work, 1 day rest. Total 110 days. By this means, Nature keeps track of the extra ¼ day in each moonmonth.

Because of this law of the moon, for about four months, we have a bad health turn every Sunday; then for four months more, every Monday; then every Tuesday. We cannot help this. All that we can do is to understand it. We can no more change such periodicity than we can live without salt in the blood.

Sometimes, a silly person says to another, "Think faster." The average normal young woman thinks 150 thoughts a minute. No power on earth can change this. By a blow, we can shock a heart out of its beat; with drugs, we can speed it up or slow it down. Nevertheless, every heart left to itself has a characteristic beat.

A man who finds himself feeling poorly every Friday for a while may take drugs and kill his sensation; but he will never change his tendency to a seven-day period; —

a buoyant Tuesday means a depressed Friday. The only moral of hygienic importance is to adjust one's tasks accordingly.

The diurnal and the mensal ebbs and floods are far greater than the hebdomadal.

A woman teacher should be careful not to try to attend to important business with the school authorities on her poor days.

There is a serious difference in strength and health in all men and women from season to season. In normal years, January and February are the best months of health; and July and August are the worst. We are strongest in midwinter and weakest in midsummer. It is a very great misfortune for teachers that the annual examinations for the promotion of children and youth come in May and June; they should come in February. They come when the vitality is running down, and help it to run down faster.

THE ANNUAL PERIOD

In sound principle, there should be no examinations covering a year's work. The notion is sheer superstition, supported by the mediæval beliefs that all minds are alike and that brain and mind have no relation whatsoever. When schools learn the knowledge and wisdom that a few of their professors are valiantly trying to spread abroad through the school year, September to June, annual examinations will be as dead as hereditary autocracy. All courses should last according to the norms of their subjects, that is, controlled by their own inner logic, and students should pursue each course until they can fairly exemplify its principles and methods.

Vital statistics prove conclusively that we are most liable to serious disease and to death in the summer

months; this is true of all human beings at all ages, not only of babies and the very aged, as some suppose. By taking midsummer vacations, we resist this depression and thereby promote health and prolong life.

There are just three kinds of teachers who should study in summer schools and then not later than eleven o'clock in the morning and further provided that they take afternoon naps every school day. These three sets of teachers are as follows, viz.—

1. Those whose physicians can honorably report that they are physically well and rested.

2. Those taking courses in hygiene and physical exercise under medical direction definitely designed to improve their health.

3. Those not perfectly well and not yet positively ill taking summer courses that will make their work the following year much easier, much less wearing, so that the summer study will greatly lessen the winter worry and fatigue.

All other teachers should either rest and play at the oceanside or in the mountains all summer or else do physical work under at least fairly hygienic conditions. There are just two ways for a brain-worker to make his summer contribute to his health and strength; outright recreation, steady muscular toil. For most teachers, the former is much better than the latter.

This seasonal periodicity through the year means that we can safely load up through December, January and February, but that we should begin to ease off in March. It is very bad to plunge in and work furiously in September and October. If we could make Easter the time of vacation and of relief from toil, it would be far better than the present fortnight of holidays in December and early January. This is the true succession, viz.— September, October, November, December, January, 5

months, work; *February,* vacation; March, April, May, June, July, 5 months, work; *August,* vacation.

Those who take real vacations in summer are stronger in November than in May. Otherwise, there is nothing to choose between the two months as to the strength of the ordinary man.

Under even normal conditions, the body weighs 5 to 10 per cent. more in February than in August; and the muscles are 25 to 40 per cent. stronger. Under the abnormal conditions of public school teaching in cities, the contrasts are generally twice as great. Many women teachers are muscularly "weak as water," in midsummer.

THE SEVEN YEAR PERIOD (?)

A periodicity but recently discovered is of startling interest. The members of every family display a characteristic hereditary tendency to illness at regular intervals varying for the respective families. A few cases illustrate this, viz.—

W. S. C. was very ill at 8 years of age; at 16; at 24; at 31; at 39; and at 50 years.

J. H. T. was seriously ill at 8 years; at 14; at 21; at 28; at 34; at 41; and at 52 years of age.

L. C. H. was so ill at 8 years as to be despaired of, again at 18 years of age; at 28; and again at 35 years of age.

Two sisters; born five years apart; died respectively at 45 years, 1 week and at 44 years, 11 months and 13 weeks of age.

Dr. A. G. H. and Dr. W. P. H. were father and son. At fifty years of age, the father went to Europe to consult a famous young physician in Antwerp for nervous breakdown and insomnia. Twenty-nine years afterwards, the son at fifty years of age ill from the same cause, visited

the same physician; who looked up the case of the father, and found that each had told of illness in their lives at the same ages and of the same character. This, of course would not be true of infectious diseases; but it is often true of illnesses self-originated.

These are the characteristic weak years of men of English ancestry, (tall, slender, impulsive, persistent), viz.— At 7 years old; at 14; at 21; at 28; at 35; at 42; at 49; and at 56. At still higher ages, the periodicity seems to be lost in general decline of all physical powers.

A man of marked Anglo-Saxon type had inflammatory rheumatism at 28 years of age; typhoid fever at 36; brain fever at 42; erysipelas at 56 (recovered well); and died at 64 years of age of cancer of the stomach. Notwithstanding this amazing record of bad disease, he weighed 200 pounds at 25 years of age; 225 at 40 years of age; 240 at 50 years; and 190 at 60 years, and was of extraordinary muscular strength until his last illness.

The father of this man died of bronchitis at 56 years of age; and his mother of old age, sitting in a chair, reading the Bible, at 78 years of age.

The life records of many persons seem to indicate a human tendency to an ebb-and-flood period of health of seven years, viz.— two years of poor health, followed by five of good health, yet modified considerably by peculiar climatic conditions and by serious troubles or by very great successes.

With respect to this periodicity, the hygienic question is, What can we do to lessen the depth of depression in the ebb of the tide?

Having discovered his own tendency to go to pieces every seven years, C. W. at forty years of age took a year of vacation, which he repeated at forty-six years of age, and again at fifty-two, upon the hypothesis that this would completely break the spell. And he was not ill

from the age of forty years until fifty-seven, the last time he was under observation. He took these vacations, though a teacher; but he was fortunate in dealing with a governing board willing to grant leaves of absence. Unquestionably, the sabbatical year of rest has a physiological basis. It is granted in some colleges and normal schools and in a few cities.

NUMBER OF THOUGHTS

The human body has several other demonstrable periodicities but none of equal hygienic import with these. We have a trick of fatigue every twenty minutes or so, when we become inattentive and take an almost uncontrollable rest. We think about 135 thoughts a minute (men of twenty-five or thirty years of age, of Anglo-Saxon stock); within each thought or stage of consciousness, there is a periodic flow. We are keenest in our attention about every other half-second. Indeed, it is demonstrable as a matter of physiological psychology that most persons do not think at all fully one-third of every half second. Between every two thoughts, almost every one goes to sleep for at least one-fourth of a second.

THE SEX PERIOD

A third periodicity is that concerned with the sex life of man. It differs greatly in different men, especially according to race, and concerns their normal sex-functioning.

In both sexes, there are according to sex, three periods, viz.:

1. Prepubertal. 2. Sex-vital. 3. Post-sex-vital.

The term of the first period ends with girls according to race and to health at various times. The healthy

Italian girl begins to menstruate at eleven years, occasionally at ten, which is precocious for persons of the "white race." The blond Swede girl comes to this change at eighteen years of age. But the usual time is twelve or thirteen years. The most precocious of all human races are the Senegambian negroes, who become sexed at eight or ten years of age, even the boys. The Scot, the blond Saxon, the Norwegian and the Swede are all altricious. It is not unusual for their youths not to come to puberty until eighteen years of age, even twenty years in some cases.

The sex-vital period runs for most American adults from twelve to forty-five years in women and from fourteen to fifty-six in men; but the upper limits are very irregular. Men and women who live quiet, unexcited, intellectual lives may retain their sex-vitality far beyond these limits.

In the last years of sex-vitality, there is a marked tendency to mental depression, which, however, may, to a considerable extent, be controlled. It is unpleasant to realize that one has turned downhill, that one's best days are past, that youth and vigor and buoyant hope will never be recovered; but even this has its compensations. We are always somewhat charitable toward grey hairs. As long as the slowing-down of the machine is counterbalanced by improvement in the quality of the judgment, as long as decline in alertness is equalled by increase in sympathy, the man and the woman who teach will have fully as much success in the years from forty-five to sixty as in any other years; often, they have more.

In most cases, however, when past sixty years of age, the teacher needs to be viewed kindly and gratefully for what has been achieved. It is sheer vanity for really old men and women,— say seventy-five years old,— to imagine that their performances are up to the old stand-

ards set by themselves at their best. Still, there are in some schools, teachers doing good service after three score years and ten; it is, however, a service mainly to their associates and to their institutions rather than to their students, the service of valuable advice, caution, counsel to the less experienced.

In this three-stage periodicity of the sex-life, sound hygiene sets up several standards; some of these are difficult, even painful, for some persons to follow.

For most women, there is a time of greatest inner desire to marry; yet very many women teachers in cities never do marry. The young women up to twenty years, and even twenty-five, does not care much. There is plenty of time yet to choose a good man for a husband. But after thirty years of age, many a young woman wakes up to the truth about herself; and wishes that she had married or could yet marry. It is undeniable that many women from thirty to thirty-eight and forty years of age really are living down a positive sorrow because city teaching has shut them away from acquaintance with men eligible to marry. Thereafter, for such women, unless they do marry, through a period of six to ten years, there is a positive, sometimes an openly displayed, dislike, even antagonism to men and boys.

Such a case was that of A. L. J., who at forty-two years of age was a snarling, unhappy, too heavy "old maid." One day, she awoke to the truth; that she was unhappy because she had no husband, no children, no home. She quit public school teaching that year and became a matron in a home-school for orphans; and has been there ten years, contented and radiating good cheer to all.

L. T. S. at twenty-four years of age, to use her own statement to her physician, "got mad because most girls had husbands." She left school teaching and became a

city newspaper reporter. After two years in this field, she explained that "now that she spent her life around with men, she was perfectly happy to live alone, when off duty in her own rooms, away from all people, men included." In her case, there was an intellectual sex-psychosis. She needed a more general companionship than schools afford.

IS IT WISE FOR WOMEN WHO HAVE LONG BEEN TEACHERS TO MARRY?

The question that forms the title here is often asked, and often it is answered in a way to discourage the questioners.

Case 1 was that of a lady who taught till the age of forty-one in a great city high school with marked success. She was married by a bachelor of fine education and character. Their one child is today a teacher of splendid success in the same high school. This lady herself is still living and in good health at nearly seventy years of age.

Case 2 was that of a woman who at thirty-four years of age, after teaching in rural schools sixteen years, was married by a man of forty-nine, a banker. They have had six children, of whom five are living, and several grandchildren. The only peculiarity of the children is that they are one and all exceptionally talented, the youngest being a combatant troop commander in the great war. The lady herself is well, though at the Psalmist's term of life.

The myth to the effect that women who have taught school for years should not marry lest some serious damage take place to their health and that teaching forms an experience that bars the hope of happy marriage is without any support in fact. Of course, when the condi-

tions of teaching are such as to have seriously impaired the general health, in some instances, though relatively not many, a woman should not marry until she has had some period of rest and recuperation. But in almost all cases, the woman teacher, being, as she usually is, intelligent in her choice of a husband, marries well and establishes a good home and raises a family that is a credit to herself and to the nation.

No woman, whether a teacher or not, who has a normal ancestry and moderately good or better health, should shut herself out from the hope of happy marriage.

On the other hand, no woman teacher should govern her own social life out of school through a general ambition to find a husband and thereby escape from teaching; this in itself makes her restless and damages her health. To speak candidly, it lessens the probability that she will marry.

Yet there is Case 3, of a woman who after teaching to the age of almost forty years, married a man younger than herself against the advice of friends, but who has established a happy home. After five years of married life, she has become cheerful and healthy and entirely free from some of the nervous troubles hitherto characteristic of her diathesis.

There are but few unhappy marriages of teachers not young when they married, for the sufficient reason that such women do not marry men of inferior character and ability.

This question of whether or not a woman of ten or more years of experience in teaching should or should not marry is not to be confused with the question whether or not a married woman should continue to teach. There is a Case 4 upon this point. Here both man and wife teach and that in the same high school. They have two children. But the wife did not teach until the younger child

was seven years old and spent her day in a primary grade room in the same building with her mother.

In general, however, the experience both of the school executives and of the physicians who have had to deal with mothers as teachers is that women with families belong for their own sakes at home; and only the most serious of financial situations should cause them to become bread-winners.

As to whether a young woman who happens to have taught a few years or so should marry, there is obviously nothing adverse to say on hygienic grounds. Nature intends most men and women to take mates and to become parents. The same merciful and benignant laws and forces that rebuild the shattered bones of wounded men and restore the almost destroyed tissues after a terrible fever of months and that construct man out of "the dust of the earth" seem to delight in the repeated marvel of making good mothers out of even frail girls.

Teaching is the finest of preparations for bringing up children in the home successfully.

The whole question here is but another illustration of the dangers of permitting a fear-psychosis to become a fear-neurosis. Men are not meant to live by fear but by faith, in the absence of fact. There was a Case 5, not to be forgotten by those of us who know it. She was a slight little woman of uncommon beauty and attractiveness, whom a young man wished to marry; but she kept on teaching for years and years. At last, she overcame her fears and did marry the man. Eight years later, she happened to meet one who asked her about her home. Her answer was this,—"I ought to have married right away." She has three children, all of them healthy. She had been "told" by some irresponsible persons that she had broken her health permanently by overwork in school

and college and "must not think" of marrying. Fortunately for herself, her husband-to-be never agreed with the diagnosis of the "friends."

All women in teaching and especially all women who being teachers are engaged to marry should have good family physicians with whom they may discuss according to need their own health affairs.

It is an opinion based upon some experiences of a concrete character that one cause of the myth to the effect that veteran woman teachers should not marry is the indubitable fact that school authorities, both superintendents and board members, do not like to lose good teachers from their forces; therefore, they encourage this myth.

No one should marry, whether a teacher or not, who has insufficient confidence in the sanity of the universe to believe that all things work together for good to those who conduct themselves according to principle. Humanity needs the homes set up by just such women as have learned much about life through the experiences of the schoolroom.

There is a certain pride in having a mate that, being denied, revenges itself upon the character, conduct and health. Otherwise, it is a common opinion both of physicians and of hygienists that the advantages of being married over the single life, alike for women and for men, are fully offset by the disadvantages. Marriage and childbirth and child-rearing in the home cause in young wives and mothers even higher sickness and death rates than those of young teachers, bad as these are; and many a young teacher-father wears out rather because of his home cares than because of his school work.

The unmarried are unfair to themselves in not regarding the facts of the envied situations of the married. At any rate, the celibate life is measurelessly better than

a life of marriage to any unfit mate,—than which indeed nothing is more destructive to health and to happiness.

There are several marked tendencies among women teachers regarding marriage that are of hygienic concern.

One is a tendency to long courtships prior to marriage in order to save money with which to start the home. In nine cases out of ten, a long courtship endured by a woman while teaching school is injurious to her health. This is conspicuously true when it involves sitting up late nights with one's lover. Such a courtship often leads to poor school work and to such difficulties with the school authorities as to induce mental anxiety and physical overstrain. From the hygienic point of view, a woman who foresees that her future marriage is far in the future should not see her lover more than one evening a week, preferably Fridays and holidays. Nor should she write daily long letters to him, a proceeding suitable only for fiancees with nothing else to do, and entirely free from daily toil for livelihood.

A second tendency for women teachers is to marry widowers with families; that is, to become second wives. To this, the woman teacher feels an instinctive resistance that often makes her irritable at school; especially because other women are very apt to make unpleasant comments accordingly. In such cases, generally it is the woman teacher who delays the marriage; which is unfortunate for all concerned, including her own peace of mind.

Hygiene is not wholly an affair of the body, a series of problems in physiology; it has its definite psychological aspects. Some day, women as a sex will wake up to the truth that in respect to marriage a fairly universal rule of wisdom is "When in doubt, don't."

Incidentally, it may be said that an intelligent woman,

engaged to marry, will not try to see her financé when she is either tired out or ill. It is a fairly universal rule of wisdom to avoid companionship with others; love, business, anything whatever, when really fit only for solitude and sleep.

PERIODICITIES AND DIAGNOSIS

Periodicity is one of the several keys to health; and in none of its hygienic implications, is it more significant than in the emptying of the bowel and of the bladder. While variation has its uses in respect to some bodily functions, under ideal conditions the bowels would move with clocklike regularity at exactly the same hour at least once daily from year end to year end and urination would be equally regular at least three times daily. In these matters of excretion, regularity is essential to continued health. Dreadful illnesses and even deaths have frequently resulted from failures of bowel and bladder to release their contents. The records of pathology upon this point are amazingly extensive; but they do not belong in books of hygiene save in reference as warnings.

There are healthy persons who have lived to great ages, though having regularly several movements of the bowel every day; and there are such persons who have urinated regularly many times each day and even several times each night. But irregular and infrequent excretion invariably shortens life with noteworthy decisiveness.

Every good general physician relies for general diagnosis upon these few signs, viz.—

1. Tongue and throat.
2. Pulse and blood pressure.
3. Evacuations.

In nine office calls in ten, these tell the physician all that he needs to know; and in three house calls out of

four, they tell him why the patient is unable to visit his office.

Pulse, blood pressure, and excretion are all functions largely of periodicity.

The man whose mind victimizes his body is the one who is constipated or who has urinary irregularities. In the strictest of physiological system, every book and paper on hygiene should begin with the statement,— More important than diet or even sleep is regularity of bowel and bladder movement. Every person with any inclination to visit the toilet should immediately do so; and all civilized buildings and procedures should be arranged accordingly.

There was a case of a teacher who under peculiar social surveillance one day felt unable to leave the room for fourteen hours continuously. An illness resulted that lasted six months; and life was saved only by an operation. Her school was being visited by several committees anxious to inspect her school exhibit; there were always visitors; and she was too modest to ask to be excused.

Excitement, false modesty, pressure of duty, oversleeping, wrong diet, all these affect the periodicity of high strung, sensitive teachers, who must, therefore, deliberately plan time and opportunity for perfect regularity for these functions. The particular hours are much less important than following the principle of regularity. But there is no better time for the daily bowel movement than in the course of rising, exercising, bathing and dressing for the first morning meal. The earlier in the day generally the better.

Those who have irregular or infrequent bowel movements and those who urinate more than a dozen times each twenty-four hours require medical advice.

CHAPTER XXVII

CARE OF THE TEETH

ORAL hygiene has become one of the popular themes of health betterment. The school teacher has a throat usually filled with dust and often infected with the germs of disease; and tired from too much vocalization. He has also peripheral nerves robbed of the normal blood supply because of the over-action of the brain and spinal cord from the necessities of school instruction and discipline. The fingers, the toes, the teeth, the eyes and ears of teachers often ache from want of blood irrigation.

In consequence, teachers have an excessive tendency to tooth and gum anemia, and therefore to dental caries and to gum pyorrhea. This general tendency to tooth and gum deterioration, can, however, be distinctly counteracted by the exertion of special care in tooth-brushing.

Few persons brush their teeth and gums properly or sufficiently.

The toothbrush should be soft or medium, never hard. Its bristles should not be long, but short. It should be cleaned in very hot water with good soap (not tooth-paste) at least once daily.

The teeth should be brushed up and down rather than across.

The gums should be thoroughly brushed.

The total time needed per day to keep an ordinary set of teeth in first class condition so far as concerns oral cleanliness and gum exercise is eight minutes. Preferably, one should brush the teeth and gums three times

a day; invariably, at least twice a day. Unless taken violently ill, one should never go to bed without thoroughly

1. Brushing the teeth,
2. Brushing the gums,
3. Gargling the throat, and
4. Drinking a glass of cold water.

Anyone who has the misfortune to wear a plate of false teeth should thoroughly clean them at least every night and keep them overnight in a glass of sterilized water. Wearing them at night (as some do) is exceedingly unhygienic; and it has caused more than one death by strangulation.

As for the various dentifrices, some are really good, some unobjectionable, and some bad.

Grit, free alkali, sugar and saccharine, strong flavors, are all bad in a dentifrice; which should be perfectly smooth, neutral, almost tasteless, slightly antiseptic, and made of pure soap and little else.

For a mouth wash, boracic acid, much diluted, is good. Some patent preparations also are good.

Castile soap and weak boric acid are quite good enough for tooth cleansing and mouth rinsing in most cases.

A decade or so ago, bridges and crowns were popular dental devices; but the scientific study and treatment of pyorrhea has convinced most modern dentists that bridges are undesirable. They do well for a few years; but usually they end by destroying the few good teeth to which they are fastened. A partial plate is far more easily cleaned.

PYORRHEA

Pyorrhea (or "Rigg's Disease") causes more teeth to be lost than does dental caries in all its forms. It at-

tacks the gums of perfectly sound teeth as well as those of decayed teeth.

There was the case of a man who had a persistent and incurable abscess in his lower front jaw. Four sound teeth were taken out; but the discharge continued. He was examined by two dentists, one family physician and one expert surgeon, all of whom agreed upon a diagnosis to the effect that he had a necrosis of the jaws. However, he went to the X-ray examiner, who upon photographing the jaw discovered that his left lower stomach tooth had a root extending at a right angle to the very middle of his front jaw; upon the end of this root was an abscess that the dentist easily reached by cutting through the gum. The root of this peculiar tooth was then filled. The trouble, therefore, was not pyorrhea; nor was it necrosis; but it was a simple abscess.

The prophylaxis against both dental caries and pyorrhea is to keep the mouth and teeth free of germs.

The care of dental cavities belongs in surgery, not in hygiene. It pays to get the teeth into good order at any cost and then to visit a dentist at least once every three months to see that they are in good condition. When one cannot honestly afford dentistry,— when to make a dental bill is really fraudulent,— it is far better to have a badly decayed tooth drawn than to allow it to remain in the mouth poisoning the tonsils and infecting the entire tract of the alimentary canal. A decaying tooth is an enemy to the health of the entire body. The pus from a suppurating gum or from a discharging tooth abscess is also an enemy to the general health. It has cost many a man the eyesight of one or both eyes. To an infected tooth, his family physician charged the death of Colonel Roosevelt as the direct cause of his heart failure at the end.

Pyorrhea first displays itself in redness, swelling and

soreness of the gums. As a general rule, one should not brush bodily surfaces that bleed,— but the only preventive of further development of pyorrhea beyond this stage is gum brushing whether the gums bleed or not. They need fresh blood; there must be set up a positive circulation to clean out the dead tissue and the poisonous blood cells. After thorough brushing, rinse the mouth with a very dilute antiseptic. ("French Mixture" is good; this is not a patent medicine but standard.) After some bleeding, the next stage will be shrinkage of the gums. This is a sign that the treatment is doing good.

There is a notion that tooth-brushing tears the gum away from the teeth. A sound gum was never torn away from a sound tooth by any wet tooth brush used with the bristles toward the tooth. When a toothbrush causes the gum to pull away from the tooth, it is because the gum is diseased usually from pyorrhea, sometimes from a gum abscess, which may not have been caused by pyorrhea but otherwise as from decayed food.

In its early stages, pyorrhea can be cured by gum brushing and mouth hygiene,— as every competent dentist knows. It is one of the strangest of diseases. It may attack simply one side of the face, or one jaw; or even one tooth, and never spread. It is, however, especially active against the lower front teeth, and the wisdom teeth.

One prophylactic measure of high importance is to keep the necks of the teeth perfectly free from tartar. This may require the efforts of a dentist to scrape the teeth where the tartar has already started.

Invalids and child-bearing women are peculiarly liable to pyorrhea.

In one instance, two teachers roomed together. One had a poor lot of teeth and pyorrhea; the other had perfect teeth. At the end of six months, the second teacher

developed one of the worst types of cases; all the back teeth, upper and lower, were affected, and suddenly no less than twelve abscesses developed. Heart failure also appeared from focal infection. At this stage, both physician and dentist were called in,— and for more than a year, the very life of this young woman was in danger. It required two months in a sanitarium and six months of rest to restore even fair health. Though the teeth were saved, after two years, the heart was still feeble; and one valve seriously impaired.

Keep away from every person who has pyorrhea. Physicians debate whether or not it is hereditary; but every medical man knows that it is actively communicable upon the breath, upon towels and upon insufficiently washed dishes.

CHAPTER XXVIII

CARE OF THE EYES

THE eyes of teachers are subjected to strains of three kinds, which give rise to various aches, pains and diseases, both special and general.

Strains of the first kind are due to overuse of the eyes in reading the papers of the pupils and the books necessary for lesson-preparation, usually by artificial light in the evening.

Strains of the second kind are due to living in a school-room six or seven hours daily with light often straight in the face or perhaps upon one side, usually the right.

Strains of the third kind are due to spending too many hours a day using the eyes in strong light and too few at night in absolute darkness and sleep.

Nature never made many eyes for any such use as most teachers imagine theirs were designed for.

What damage is done to anyone's eyes by these several strains depends, first, upon the nature of one's eyes; and, second, upon the severity of the strains.

It will pay anyone whether a teacher or not to take a good look at one's own eyes and perhaps then to have them investigated by a thoroughly competent and experienced oculist,— a trained physician with the specialty of eye-treatment, no mere optician, optometrist or jeweler who fits glasses.

Anyone who wishes to get a line upon one's own eyes will note these points, viz.—

1. Whether there is any inflammation whatever of the

cornea, which should be hard-boiled egg (or china) white. A blood-shot or even blood-streaked eye is not in good condition.

2. What is the distance between the eyes compared with the length of the face? This gives a means of estimating the strain upon the external eye-muscles. Persons with eyes very close together or with eyes very wide apart should not do much reading of any kind.

3. The color of the eyes. This is determined by the blood-current with or without direct local pigmentation. Albino, grey and blue eyes have no secondary or brown pigmentation. Yellow, green (cat) and hazel, brown, brown black, and so-called "black" eyes have an increasing amount of secondary pigmentation respectively. The lighter the eye, the less it can stand the light. Large, light, normal eyes see exceedingly well; small, dark eyes are protected from seeing too well. Light eyes are easily tired; small dark eyes wear well. Most teachers have middle color eyes,— dark blues and light browns; technically known as 6 or 7 in the scale of color up to 10. The albino eye is pink, or even bright red. It requires smoked glasses in sunlight. It is not light blue, as some imagine. It has no pigment whatever.

4. The size of the eyeballs and of the pupils. The larger, the weaker, the less able to stand wear and tear. But small eyes should not be tormented with details, whether they are light, middle or dark.

Only an oculist knows for sure whether one is far-sighted, normal-sighted, or near-sighted, or whether the poor vision is due to some other defect. Only the eye-doctor knows for sure whether one is esopheric, exophoric, heterophoric or normal in the swing of the eye-muscles. And only such a specialist can tell for sure whether at forty years of age or older one is beginning to suffer from old age of the eye,— presbyopia.

But any person of physiological inclination can tell whether or not he had better consult an oculist. It should be easy to read the print of this book (ten-point) at just 14 inches from the eyes. It should be easy to tell at a glance c from e and W from M and Z. O should look perfectly oval. Each eye should, of course, be tested alone, with the other shut.

And one's head should not ache from reading even two hours at a stretch.

The results of these several varieties of eyestrains include headaches, stomach-nausea, mental depression, direct eye-pains, and dislike of school-teaching.

Anyone, whether wearing glasses or not, does well to understand and to practise both massage and hydrotherapy for the eyes. If possible, prevent overstrain. Keep the brim of the hat down over the eyes when facing sunlight or any other strong light. Do not use a very strong light when reading. Do not stay till eleven o'clock P. M. in a brilliantly lighted hall. Do not read fine print at all. Never spend five consecutive hours reading the papers of pupils. These are all good rules. Keep out of strong winds. Wear blue or smoked glasses when there is sunshine on snow. There are more good rules. Nevertheless, the eyes of teachers are often strained.

A gentle, firm massage with clean-washed hands all around the eye-orbit and over the back of the neck and upper spine often helps tired eye-muscles.

Hot towels upon the closed eyelids, the face and forehead often help. The temperature should be at least 110° and better 125°–140° and even more.

There were two cases of severe eyestrain with snow-blindness. One treatment used a dark room, lukewarm water, and drastic food regulation. The patient was cured in three months. The other treatment used the dark room, very hot water — 150° — no food, plenty of

lemonade and orangeade. The patient recovered in ten days. In each case, the eyes were tomato-red with light-phobia. Each physician supplemented the above treatment with one application of the artificial leech, to reduce the blood congestion. Two cases do not settle such a question; but the best oculists today never use water upon the eyes at less than 98°. The ice treatment has been utterly rejected.

The eye is both a delicate and a tough organ; internally exceedingly delicate, externally tough. It will stand under the eyelid great heat, and will clear up congestions when so stimulated.

Esophoria, which is due to having too short internal eye muscles, produces both epileptic fits and mental derangements. Mild cases are relieved by prism glasses; but severe cases require that the muscles be buttonholed and lengthened by surgery.

Some headaches are relieved by plunging the head into cold water and reducing the temperature thereby. The eyes must be kept tightly closed. For the final plunge of the head use water at 100° and open the eyes. Rub head, neck and face but not too close about the eyes thereafter with a coarse towel. It is unfortunate that many women because of their heavy heads of hair are unable to use this treatment; yet a wet compress will afford them some relief.

It is highly important to avoid taking cold in the eyes in winter winds, which do as much harm as summer sunshine to the eyes. Never sit on the sea sand with head and eyes unprotected facing upon the sunny sand and sea.

When something seems to have gotten into the eye, three hypotheses may be ventured, viz.—

1. The eye is slightly inflamed, and some capillary is making trouble.

2. Something extraneous is in the eye; but it will soon dissolve away or slide toward the tear duct.

3. The something is hard, has cut into the tissue, and will stay there until removed.

The remedy for the first condition is,— hot water compress and absolute rest for the eye in the dark.

The remedy for the second condition is patient waiting,— with or without syringing with hot water.

But the remedy for the third condition is often difficult to find. It is indeed often hard for the patient himself to discover where the hard particle is and what it is. Soft coal melts away; but a hard coal cinder does not. A very sharp splinter of steel may so imbed itself in the eye as to cause serious inflammation and finally to result in the loss of the eye.

When blowing the nose and dashing hot water into the eye do no good in dislodging the foreign particle, the safe thing to do is to see a physician immediately. When it is impossible to secure a physician, roll some cotton upon a round stick, wet it with glycerin or some other emollient and let a friend roll back the eyelid and explore and try to wipe out the particle; but the very greatest care must be used lest the foreign matter cut still deeper into the cornea. (The competent physician uses a camel's hair brush or the equivalent.) When the cotton ball fails, bandage up the eye in a clean handkerchief around the forehead, and travel quietly until a physician is found.

Many an eye has been lost because it was fooled with by ignorant persons. It is far worse to lose an eye than an arm or leg,— especially for a woman.

CHAPTER XXIX

CARE OF THE EARS

CONTRARY to the popular impression, the ear is more liable to troubles than the eye. It is open to every kind of infection from the throat and *via* the throat to infections from the nose, from the mouth and from the stomach. It is also, of course, open to attacks from without through the meatus.

Deafness is more common than blindness, though no doubt less serious in a civilization like ours, which appeals more to the eye than to the ear.

One of the most common causes of ear-trouble is blowing the nose hard with both nostrils obstructed by a tightly held handkerchief. When there is a "cold in the head," any catarrhal trouble, or any infection of the throat, the direct result of this is that some mucus is forced back into the ear-passages, causing at least temporary deafness. A clogged nostril should be sprayed with a warm, mild, antiseptic solution; not douched. Never use a current of water in the nasal passages. Such a procedure may drive an infection into the facial bones and cause abscesses, eye-disease, and death.

When one cannot spray the nose, hawk the phlegm back into the open throat and discharge it into a handkerchief or into a paper towel. Even if it slips down into the stomach, it will do far less harm than in the ear-passages.

A handkerchief is well enough to dry tears from weeping and to receive sputum in an emergency. And may, of course, be used harmlessly when the nasal passages are healthy.

A common cause of trouble to the ear is the insertion of some foreign substances like a pea or a pebble or the settling in it of an insect such as a fly or a bee. Occasionally a wad of cotton gets packed into the ear and is allowed to remain until, being hardened with earwax, it causes positive trouble. The great size of objects found in the ear and the queer presence of even living insects are perhaps incredible to non-medical persons. It is by no means unusual for a surgeon to find it necessary to cut in from the outside in order to reach perhaps a bean that has swelled and even germinated in the ear or a bumblebee lured to the point by the earwax.

Many a patient who has imagined that he has kept his ears clean by washing them always in the course of his weekly or semi-weekly bath has nevertheless a mass of hard earwax that only an otologist can properly remove. The usual symptoms are ringing in the ears and local pressure.

While no nose should ever be syringed or douched, there is no especial harm from syringing the ear with warm water or with a warm normal salt solution (98°; 3 per cent. salt). When after a bath the ears seem dry inside, it does no harm to wipe them out with a cotton swab moistened with goose oil or aseptic vaseline or aseptic cold cream. But cotton should never be kept in the ear unless prescribed by a physician.

The notion that it hurts the ears to swim on one's back or under water springs from experiences of ear-infection due to foul water. Heavy surf-bathing may jar the ear-passages; but pure salt water or pure fresh water of itself never does a healthy ear any harm. Of course, after bathing, when one's ears are full of water, this may be shaken out by shaking the head or may be allowed to run out, first, from one ear and then from the other by lying

upon the sides of the body. Never press the water further into the ear by inserting the finger or thumb or anything else into the ear when water is present.

Indeed, this rule is far stronger. Never insert into any ear anything harder and stiffer than the corner of a coarse towel or a soft roll of absorbent cotton; never. Ear-spoons are utterly taboo. They are far worse upon the ear even than goosequill toothpicks are upon the gums. These are instruments solely for ear-doctors; who do not, however, use them once in a decade!

The large city is a bad place for the hearing. All of us are well aware that too much light is very bad for the eyes, but we fail to notice that too much noise is quite as bad for the ears. Silence is as good for the ears as darkness is for the eyes. We need quiet bedrooms as well as dark ones.

The man or woman who snores is as much a hygienic sinner as one who keeps a light in a bedroom all night.

Put out all lights.

Shut off all sounds.

These two rules are essential to good sleep.

Roaring at a sleeper to waken him is as vicious a proceeding as sticking a lighted candle close to his eyes. Indeed, it is worse and from two causes. First, eyes have lids but the ears have no shutters. Second, an attack upon the eyes with sudden light pounds upon the lobes of the cerebellum at the back of the head where the brain is characteristically large; but an attack upon the ears with sudden noise pounds upon the far lighter areas of the cerebrum about the ears where the brain is characteristically very sensitive.

One can listen too much as well as see too much. Of as many teachers it may truthfully be said that "Their ears are overstrained and have given out" as of others it

may be said that "Their eyes have played out from too much work," but seldom is the first remark ever heard outside of the physician's rooms.

Exercising the external muscles of the throat and neck and massage about the ears often helps ear-neuralgias and anemias. Hot water bags also do good. But silence comes first. Do not sit and talk and talk when tired or to persons who are tired. A joyous silence is golden when the brain aches from too much listening to noises and to voices.

For the care of the ears, remember that one should form the habit of sleeping part of the night upon one side and part upon the other. The habit of turning from side to side several times in sleep also assists in preventing spinal curvatures. The ears benefit much more quickly than the eyes from properly active circulation of blood in the neck.

CHAPTER XXX

CARE OF THE VOICE AND THROAT

"CLERGYMAN'S throat" is an affliction of many teachers. The typical case of the clergyman whose voice and throat have given out is that he has preached and prayed in public perhaps several hours on Sunday and as many hours all through the week; and then talked conversationally with his family and his parishioners from morning to evening every day. Real orators do not have "clergyman's throat" for several reasons. First, they have good, strong throats as a foundation for their oratory. Second, they do almost all their talking with their diaphragms and abdominal muscles — and almost none with their throat walls, tongues, and lips. Third, they are silent most of the time,— listeners, not conversationalists.

There was a case of a man teacher whose throat and voice were worn to shreds and whispers. He talked on the average in day and evening school, eight and nine hours daily; and he talked at home with his family. His physician prescribed throat massage and head duckings to cool the speech center upon the left front of his brain,— which was usually hot. The case got worse. Though he had good general health, his voice fell to a whisper, and there was a continuous acute inflammation of the entire throat,— fauces, pharynx and larynx. Medicaments did no good.

Then the physician put the man into bed for three days,— forbade anyone to see him except to bring food,

and forbade also his talking one word more than was necessary. When he got up on the fourth day, he ordered him to stop his night work, to reduce as much as he could his oral instruction, to drop his Sunday School class, to listen at home, not talk; and to spend twelve hours a day in bed.

In six weeks, this teacher's sore throat was well, and he had learned important new habits for the rest of his life.

Those who indulge overmuch in throat exercises and massage often stir the thyroid glands to excessive activity. The best of all exercises for a weak voice is deep breathing. One who does overmuch body-bending and abdominal work stirs up the suprarenal glands and gets too much waked up again,— which is the very thing for a voice-weary class teacher to avoid.

Throat gargles,— with warm fresh water or warm sea water,— are good morning and evening for tired voices. Gargle in all two or three minutes. Never use strong antiseptics, which are bad for the vocal cords and for the epithelial tissues.

Best of all for the voice is placing it right,— finding just that pitch where the least fatigue is felt. This requires good hearing and sense of pitch and both physical and moral self-control. Anger, hate and fear have horrible effects upon the voice. Anger tears it, hate grinds it, fear robs it of the normal blood supply. Anger forces adrenalin up into the delicate tissues and engorges them with blood; hate holds the throat rigid; fear impoverishes the throat.

The voice is properly sounded just back of the front teeth. The best speakers and the best singers, male and female, alike, have their speaking and singing articulation and enunciation at the tip of the tongue upon the hard palate and shaped by the lips. A few persons are

born to speak so; a few more learn this speech from their mothers; but most persons must be taught at school and must practise by themselves at home.

It is truly astonishing and most delightful to listen to a man or woman on the public platform who so uses a light, agreeable, restful voice that every word, sharply cut, can be heard in a large audience room by thousands; and it is just as astonishing and delightful to hear in a classroom a teacher speak with similar artistry. Such speakers never get tired throats and voices; something else in them gets tired first.

Persons of three types find such speech exceedingly hard to acquire. First, the adenoid type: — they have projecting front teeth, high palates, narrow mouth arches, usually hypertrophied tonsils, and a uric acid diathesis. Generally, they have weak, shrill, high-pitched, almost falsetto voices. And it takes more than mere self-control to get their voices into form. Second, those who have wide, open throats, deep-set tongues, heavy muscles, who groan and girr in their throats,— whose voices are echoes as from caverns. Third, the tone-deaf type, who may know the sounds of words, but who never learned speaking. Usually, they whisper away in monotone. Sometimes, they roar in monotone.

Persons of these three types are more numerous than are persons who speak well,— far more numerous.

A clear, bell-like voice, of moderate pitch,— for women, G, A, B, and C, not at concert but at standard pitch, neither sharped nor flatted,— is charming in most young women; but it must go up and down in the scale at least a good octave in ordinary teaching in order to be sufficiently varied not to tire either the throat of the teacher or the ears of the pupils. The woman whose range is only from C♯ to F♯ (soprano) has too shrill a voice, too narrowly used. The man whose range is only from E♭ to C♭

(base) has too dull a voice, also too narrowly used.

Though far more persons are born with auditory than with visual minds, such are the standards for admission into teaching that the very great majority of teachers are visualists rather than auditors, silent readers rather than vocalists; and their teaching itself betrays them.

But the very truth that they are visual and non-auditory explains why they so misuse their voices. Almost every person afflicted with laryngitis or any other throat trouble, caused or accompanied by bad use of the voice, is one who really never does listen to the sound of his own voice. Any person who has a natural or developed sense of hearing,— pitch, tone, volume, resonance,— makes his own voice, however poor its instruments in throat, vocal cords and mouth, sound reasonably well. The ear, not the throat, makes the agreeable voice. And in the long run of the decades of living by a person who is moderately self-conscious,— that is, has self-understanding but neither pride nor false humility,— it is the mind that makes the ear that hears as it is the mind that makes the eye that sees.

A person who has a rasping voice is trebly unfortunate. 1. He makes unnecessary and yet inevitable enemies, because his voice wears upon and irritates them. 2. He wears upon himself, frets even himself by his own voice. 3. He victimizes his own throat, and thereby, to his own bodily instrument for working and living, he does heavy damage.

The tired throat is somewhat relieved by various drinks according to its troubles respectively. Cool, fresh, pure water serves for most purposes, say 55°; never ice water for a tired throat. Hot water often helps. Milk, warm or cool,— 98° or 60°,— is often excellent. Lemonade, orangeade, even grape juice and mild tea (green only) and coffee have some therapeutic values for some definite

purposes. A throat, fatigued to the point of evasive relaxation, is helped by the astringent qualities of hot tea; but it is only a temporary help and for it only a small teacupful is permissible. Some of the patent cough drops do some good in some cases; but most of them make most of the cases worse.

Gruels of oatmeal or barley, made with a little milk added, are good to take mornings or afternoons when the voice is giving way. But the stomach must not be completely filled with such diet lest there be no hunger and no room for really substantial foods such as meats, eggs, bread and pure ice cream at the meal hour.

Of the criteria for health as apart from strength, the voice is only one of the minor helps; but of all the criteria as to the general strength, the vital reserve, the attack and resistance in the battles of life, none is more valuable than the voice.

When a woman comes downstairs of a morning singing away upon some familiar song, whatever its nature, it is altogether unlikely that she will be unequal to the day and its duties. The surplus nervous energy reports itself to the world in the voice. A weak, plaintive voice is the apology of the entire body for the generally unfit condition to live, playing one's part well. When one's voice betrays an undesirable physical or mental state, the sooner one sets about changing such a state, the wiser one is.

CHAPTER XXXI

CARE OF THE SKIN

IN their proportions to the whole body in respect to their relative weights, the bones come first, next the muscles, third the skin, which should weigh more than the flesh or the internal viscera and far more than the veins and arteries or the nerves. An exceedingly thin and delicate skin, such as characterizes some women and a few men and in women is supposed by some to be a mark of beauty, is truly, when properly considered, a mark of deterioration and of future danger. The "thin-skinned" are peculiarly liable to troubles from drafts, from strong winds, from local abrasions, from chills. Almost all such persons are muscularly weak and have frail digestions, frail breathing apparatus, and frail nerves. Psychically, they are alert but over-sensitive. Their bleached, bloodless integuments have been caused by such conditions as these, viz.—

1. Indoor living.
2. Non-protein diet.
3. Either too much or too little bathing.
4. Too much clothing, day or night, or both.
5. Insufficient exercise.
6. Too much brain work, or
7. Poor heredity.

Fortunately, for the "thin-skinned," their condition may be remedied without much trouble and in comparatively brief time because good Mother Nature intends us all to have skin enough for health and comfort.

There was a case of a young woman teacher, half Wurttemberger (German) and half Highland Scotch, who had a tissue paper skin and a steady bronchitis, not an unusual combination. She was very intelligent, very industrious, very amiable, very pale, very thin, and very tall. (Body coefficient at 23 years of age only 1.70.) She fairly shivered even in a summer breeze and wore very heavy outer garments in winter. She had an abominable stove in her rural classroom as the source of heat; and she stayed too near it. She lived in a farmhouse with no bathroom.

Tuberculosis was distinctly threatened.

A single summer at the seashore set her in the right direction. She went home weighing twenty pounds more, and half of it was in a rebuilt skin, due more to staying outdoors than to her twenty minute salt water bath every other day. The resort had still water as well as surf; and she went rowing for several hours every day.

Farm girls have good skins from living outdoors? — No, indeed. They and their mothers often have poorer skins and live indoors more and in hotter rooms than do modern city women. We should be changing all that.

The regimen for building a good, clear, beautiful and useful skin includes these methods, viz.—

1. Plenty of skin building foods. (Vegetables and fruits do not help much in this direction.)

2. Skin aeration and lavation and towel-rubbing every day,— top to toe.

3. Several hours daily outdoors. When the tender skin roughens, use cold cream; glycerin and denatured alcohol; vaseline; or any other aseptic emollient.

4. Light underwear.

5. Enough non-fatiguing exercise to stretch the skin upon all parts of the body.

The thin-skinned often have pale, drawn faces. Al-

most as often, they resort to massage, which in nine cases out of ten does no good whatsoever to them. As for rubbing cold cream, mutton tallow or anything else into the skin to make it more plump, the physiologist can only laugh. The human leather was built to keep everything off from the skin and out from the tissues. The popular legend to the effect that bathing in milk makes one fatter is simply funny. The skin does not absorb water in a bath; on the contrary, bathing always makes one still thinner for the time being because it sets the blood to burning yet brighter. Whether milk makes the skin soft and white is a different question.

The thick-skinned who have no herpes or pimples or blackheads or acne or other skin disease have nothing in this line to complain of; they are well-born and fortunate.

The serious and baffling skin troubles are too varied in kind and the kinds are too numerous even to mention many in a book on general hygiene; but whatever the kind, it seems especially to afflict those whose skins are not good leather. Therefore, a generalized skin regimen, such as by experience seems to develop and maintain a good skin, is desirable. It is offered with this definite limitation; a differential diagnosis of the characteristics and peculiarities of every skin that is not well is required. The system here proposed is not of universal applicability. For example, some skins suffer from bathing even with pure soap and water. Some skins will not endure even the finest of soaps, used moderately. Some skins are roughened by fresh sea air. And some skins cannot endure tanning by sunlight and wind. But for most skins this system works well.

1. Daily bathing all over, tub, shower, or wet towel, in ventilated room at 70 degrees. Rubbing by a rough but not harsh towel, except face, fingers and toes, which require soft, thin, old toweling.

2. Brief aeration for all parts of the body, twice daily. Some women dress and undress inside of their kimonos or bathrobes; but most skins benefit by an open-to-the-room-air treatment. A dressing-room should not be too cold,— 70 degrees is reasonable.

3. Exercising every muscle of the body every day.

4. Wearing light, open mesh underwear.

5. After using soap to clean hands or any other part of the body, rinse well in clear water. Never leave any soap upon the skin.

6. Avoid heavy clothing even in winter unless driving outdoors seated in a conveyance. The skin is meant to keep the body warm.

7. Carefully avoid all known sources of infection or of abrasion. Wear rubber gloves when washing dishes. Wear cotton gloves when sweeping or dusting. Keep out of all dust from whatever source, including furnace ashes.

8. To soften the skin, rub with oatmeal or bran; or use aseptic cold cream or the equivalent.

The questions of veils, of hats with wide brims and of talcum powder are to be answered in the terms of personal traits and needs,— but there is no skin that prospers from the use of cosmetics that seal the pores and check heat radiation. Skins are meant to perspire water and to exude oil; and these functions are necessary both to health and to beauty. A painted face is not so beautiful as a pale one; and a pale one is not so beautiful as one rosy with good heredity, from good blood and from fresh air out of doors.

THE VARIOUS SKIN DISEASES

All such troubles as eczema, pimples, acne, blackheads, herpes, ringworm, moles, warts, ingrown hairs, scales,

white spots, scrofula, itch, erysipelas, pediculosis, dandruff, scratches, shingles, birthmarks, chilblains, cracks and sores, felons, styes, corns, bunions, callosities, ingrown nails, cuts, wounds and abrasions, facial hair upon women, chancre, blisters, boils, wens, carbuncles, tumors and cancers that afflict the skin belong for discussion in medical treatises rather than in hygienic compendiums. But a few suggestions to show the importance both of common sense and of personal treatment by a doctor are in place here.

1. No such rule as "Use plenty of soap, water and clean towels" covers all skin troubles. Soap, water and towels are bad for eczema. Of course, every case of eczema is different according to the patient; but in general the treatment is a very gentle cleaning with soft water, then covering away from the air with some antiseptic ointment, and no more washing for a week! In truth, water is bad for many of the skin troubles. There are some conditions in which even seabathing is forbidden.

2. It is not true that "All skin troubles are caused by uncleanliness." On the contrary, excessive manicuring develops or at least assists the development of hangnails and even of felons. A very clean skin seems to invite infection by ringworm. Close shaving leads to ingrown hairs. The management of ingrown nails does not turn upon frequent bathing and cutting but upon packing under the nail with sterilized cotton soaked in oil or wax and letting the nail grow,—perhaps after scraping it thin with a sharp knife edge.

3. Everyone of these troubles calls for special therapy. Corns are caused by loose shoes that do not fit, and bunions by tight shoes that do not fit. Chancre is due to an infection by a very serious disease; but scrofula is probably hereditary, while no one can yet prove what does cause cancer wherever it occurs. Shingles about the

waist are caused by nervous breakdown. It is well known that "when they meet over the trunk, the patient invariably dies"; but they never meet and never can meet because the nerves along which the shingles spread do not meet but sweep upward upon the trunk and end before meeting.

Very hearty persons are peculiarly liable to boils and to carbuncles, which, however, are not self-originated but due to infection from others. Many of these troubles tend to reproduce themselves and to spread; others tend to shrivel and shrink, their first state being the worst. Therefore, home treatment of skin-diseases without medical advice is a risky experiment.

4. All these troubles are cases where the tissues have "gone crazy," cannot develop and die normally; they may be fighting invading microbes or bacteria, or poisons from the blood, or they may be worried over excess nutrition. Cancer is a natural growth gone to mad excess. A boil, however, is a siege laid by the skin and blood against a filthy enemy.

Because we can see the results of skin diseases upon the surface of the body, we know their names and something of their natures to a degree beyond our observation and knowledge of any other diseases. In consequence, few persons ever die of skin diseases, because they are arrested in time and cured. There is, also, a very marked social prejudice, even a social taboo, against persons who have skin diseases. This is due to several causes, viz.—

1. The fact that many skin diseases are communicable.

2. The fact that many of them proceed from uncleanliness.

3. The fact that all of them destroy the beauty of the skin.

Notwithstanding these general notions regarding skin

diseases, two truths require emphasis,—first, that many of them are obscure in their origin and cause; and, second, that the popular notions and procedures of treatment often make them worse. Of these truths, many illustrations might be given. No scientist yet knows the cause of cancer or even of warts. The very popular methods of dealing with dandruff,— 1. the daily use of a fine tooth comb; and 2. washing the head frequently with soap and water, both generally make the conditions worse rather than better. Manicuring the finger-nails not only often ruins them but actually develops several troubles. No doubt the hair and the nails should be kept clean; but manicuring the nails may be the opposite of curing them; and soaping the hair burns it.

The rule of the old barber is a good one; of course, shampoo the hair every fortnight or so, but do it as quickly as possible, and be sure to get every trace of the shampoo out of the hair. Soap is as bad for skin and hair as it is for dirt.

Some of the troubles of the skin are due to peculiarities that no physician has yet fathomed. There was a case of a man who at eighteen to twenty years of age was greatly troubled by swollen sebaceous glands at various points of his body. This stage passed away to be followed by wens upon his head. These were removed by surgery and ceased to appear. Then came a stage of eczema that lasted ten years. This was cured but was followed by warts, dozens of them. At fifty years of age, there was not a mark upon his body; and his skin was as clear as a baby's. This stage lasted several years. He seemed to be under the influence of successive hereditary forces.

Just as there are persons who never have decay in any tooth till death; and persons who have abundant black hair into old age; so there are some who never have a

corn upon a foot or a hangnail upon a finger. The first may never brush their teeth; the second may never wash their hair; and the third group may be careless about washing. These are the fortunate primitives whose structures and tissues are still proof against outer nature and civilization. For most of us, however, it certainly pays to be hygienic.

Should there be an infected spot upon the surface of the body, great care should be taken at once and constantly thereafter lest it spread or be transferred elsewhere. Seldom does soapy bathwater serve as a carrier, but the infected towel is a frequent cause of increased trouble. Sores, ringworms, boils may be covered with carbolated vaseline, zinc ointment, iodoform dressings or otherwise as much to protect the rest of the body and other persons as to promote cure.

CHAPTER XXXII

CARE OF THE HAIR

ORDINARILY, the hair of the head goes through four stages; but their nature depends upon the race of the individual and upon the particular diathesis. The first stage is the woolly mat characteristic of birth. It seldom lasts more than a few weeks. In the second stage, there is a thick growth of strong hair that becomes heaviest at about sixteen to eighteen years of age. Third, is the greying and thinning out stage, which is decidedly evident at about forty or fifty years of age. Last comes baldness of the crown with thin white hair in a fringe below the crown; often the baldness starts also from the neck up. Such is the usual process.

Here and there is the individual who has dark hair and fairly thick as late as sixty or even seventy years of age. He is usually a brunette. Not infrequently, a Welshman has such hair. A large number of men begin to be bald in spots as early as thirty years of age. The man who becomes distinctly bald at thirty years of age is usually a blonde. Not infrequently, he is a Saxon, either English or German.

Hair that remains pigmented through life and baldness that comes early in life are not only hereditary but also racial. Is it then utterly futile to try to prevent greyness and baldness? Do brushing, shampooing, dressing even by experts serve any useful purpose in keeping a good head of hair? Often, at various times, the head seems to have a serious tendency to dandruff; and with

the dandruff, there seems to be an increase in the activity with which the hair falls out. Is there any tendency to have dandruff; and does the dandruff cause or follow the increasing baldness? Millions of persons including teachers are worrying about these matters. They are really more sensitive about their hair than they are about even their upper front teeth. The bald always look so queer! And women do not like to wear false braids nor men wigs or toupees.

The first thing to be observed is that greyness and baldness are part of the human lot, and come because old age can be escaped only by dying young.

The second thing needs to be remembered,— the principle of periodicity works as to the hair also. Every spring, there is a marked tendency of the hair to get stronger. Often for ten or even fifteen years of middle life, the hair is much better pigmented and thicker in May than it was in January. Cold winter weather has stimulated the scalp and forced it to try to improve its covering. Summer bleaches the hair and dries it out; and in the autumn and early winter in middle life, the hair falls out. Fortunately for a score of years, there is an active replacement by new hair.

Third, both the common experience of mankind and the positive records of physicians show that some procedures strengthen the roots of the hair, prevent its being broken from dryness, and prolong its life.

What the hair needs most of all is an active circulation at its roots. This is secured by massage with the fingers morning and night and by vigorously working the scalp. Men should never wear hats with tight hatbands. Women should never keep their hats on for several hours at a time. If possible, they should take their hair down every afternoon and exercise the scalp and air the hair for a few minutes.

Next, the hair needs its own natural oil. It should be brushed and combed twice daily,— for how long depends upon its length, fineness and quantity. Dressing the long, heavy hair of typical women of most of the stocks represented in America is a serious matter,— as all such women know. It takes time,— often a full half hour every morning. Despite its beauty, such a heavy head of hair is a heavy handicap in life as compared with the short hair of men. Brushing and combing bring the oil up from the scalp through all the hair.

Many things that are done to the hair were better not done.

1. A fine tooth comb should be used, if at all, only gently and sparingly,— perhaps twice a month at most. It rakes and irritates the scalp and starts troubles of the skin. Of course, of itself, it never causes dandruff. Men generally are too fond of the fine tooth comb.

2. The hair never should be heated by curling irons. The woman who desires her straight hair to be wavy will pay the price in early loss of long hair; that is all; it is enough for the intelligent. Putting up the hair in curling papers without heat tends only to break it, but otherwise does no serious harm.

3. There is no harmless hair dye or stain, not even sage tea. Not to raise the question whether darkening the hair artificially ever deceives any one, the process defeats itself, for it attacks the hair and soon makes a bad matter worse.

4. Bleaching the hair dries it; and drying the hair burns its color and its substance. The dark lady who becomes "a bleached blonde" in a few years proceeds into "a woman with a wig." Bleaching promotes baldness.

5. Those with the thin hair of middle age should note that it does not keep out dust and that it dries out much

more quickly than the thick hair of youth. The float of particles in the air from woolen carpets, rugs and blankets clings to the hair when thin and, unless removed, mats upon the scalp. These two troubles suggest their own remedies.

6. In the case of women with hair upon the face that annoys them, depilation is a severe temptation. Electrolysis is the only remedy; and the experienced physician is the only person to whom it is safe to go for advice and treatment. Many a woman has made much trouble for herself by experimenting in the removal of hair otherwise than at the hands of a medical expert.

CHAPTER XXXIII

CARE OF THE FEET

THE normal American girl of sixteen years has had an outdoor summer vacation every year when she has gone swimming and has run about barefoot or with shoes adapted to active sports; and the arch of her instep is high, considerably higher than that of her own brother of the same stock and breed. In consequence, such a girl needs a shoe with a higher heel than does her brother.

But the average American woman, three times as old as the girl, has insteps badly broken down and is flat-footed, which is a calamity. Flat feet are serious burdens to any teacher; they cause pain, prevent much active exercise, and reduce efficiency. In addition, a flatfoot with its broken arch is ungainly in appearance; and causes personal mortification, which is prejudicial to joy in life and therefore to health.

Every normal person has feet entirely free from corns, bunions, ingrown-nails, other callosities, and from skin diseases. By this standard, few persons are normal. The question is what regimen will gradually restore feet that are not in good health to such health. In some instances, nothing can be done successfully. In other instances, chiropody and even positive surgery and medication may be called in successfully.

Those who have trouble with their feet should remember that there are other persons who have never had trouble and still others who, having had trouble, have

been perfectly cured and should infer that perhaps they themselves are responsible for their foot troubles. Many persons are unnecessarily content with their own foot-management, assuming that corns and flat feet are irremediable dispensations of fate,— to be endured, not cured.

There is no universal rule as to what comes first in the care of the feet; but there are some general rules, which may be stated as follows, viz.—

1. Wear close-fitting shoes.
2. Never wear the same pair of shoes over two days in succession.
3. Bathe the feet at least once a day in warm water.
4. Wear smooth, clean hosiery, preferably thin.
5. Get after any threatened trouble immediately.
6. Trim the nails moderately but frequently.
7. Never keep rubbers on one minute longer than necessary.
8. Do not wear patent leather or waterproof uppers on shoes.
9. Wear light-weight shoes indoors.

Each one of these rules is worth thorough consideration.

No one should ever wear a shoe with a low instep; a moderate arch is needed by every one. Persons with naturally high arches need shoes with strong, high insteps and moderately high heels. (One and a half inches is not too high for many women who are five feet, six inches tall.) Low heels (less than one inch) will do for some short men.

The man who finds to his disappointment that after being worn a few days, new shoes fail to support the feet should throw them away, lest a worse evil befall him. The woman with similar experience should do likewise. Most shoes now on sale have weak, low, anatomically incorrect shanks and tight, stiff vamps. The

shank should be well-rounded and strong and the vamp free and easy.

Every shoe should be a snug fit. Loose shoes cause a hundred times as many corns as do tight shoes. Upon getting new shoes, wear them only an hour or so daily for several days to break them in gradually. Any shoe properly managed is better the second year than the first. Do not buy shoes to wear them out but to keep and use slowly. Many intelligent persons wear shoes off and on for four, five, even six years. A shoe grown stiff with age may easily be softened with vaseline or cold cream or olive oil.

A shoe that fits is extra long to allow for the forward pressure in walking down grade, and to prevent the development of ingrowing toe nails.

The foot sweats and should sweat; the shoe needs more than the night to dry out. Any shoe presses upon some points rather than upon others. Keep several different pairs in use, preferably made upon slightly different lasts and of different leather. It is a mistake to buy at the same time shoes of the same make and quality.

The feet can scarcely be bathed too often; in this respect, they are like the hands. Only when there is eczema, should the daily bathing be omitted. In many cases, after bathing the feet, they should be well dried. Dusting the feet well with talcum powder is often a help.

Soaking the feet in very hot water for a quarter hour cures many troubles when kept up daily. (Some patients object to taking so much time; but it is quite possible to sit with one's feet in a pail of water or upon a chair beside a tub, while reading a book or magazine or even while writing a letter. The point is to let the feet soak.) In some cases, sea salt, or even ordinary salt, in the water may help.

In many instances, corns are caused not by the shoes but by the stockings. Many persons wear coarse or overlarge hosiery that rubs or overlaps and so makes trouble. The hose should fit exactly, being neither too tight nor too loose. Persons who have any trouble with their feet should, when possible, take off both shoes and stockings and rest and aerate their feet every afternoon. It is not enough to remove the shoes only.

The foot is the only part of the modern person to be encased in leather. It is true that our barbarian ancestors wore skins; but even they wore upon their feet sandals only, not shoes with both soles and uppers of leather, which is not good for the skin because it is too impervious to permit proper ventilation of the feet. In order to protect our feet from injury, it will be necessary even in the coming airplane age to wear leather shoes; but we can ameliorate the resultant foot troubles by attention to foot hygiene.

There was a case of a woman teacher who noticed a slight difficulty in one toe,— inflammation and pain and stiffness. She let it go. A few days later, the entire foot was badly swollen. Now such symptoms may attend various troubles and are difficult for even a physician to interpret. The history of this case is both medical and surgical; but this difficulty, which was remediable when she first noticed it, actually cost her lower limb to the knee; and she barely escaped with her life. The original and moving cause was that she stubbed her toe in the dark against a chair; broke a joint, and set up an inflammation, which getting an infection from some untraceable source, developed into blood-poisoning. This, of course, was a very unusual case; but this fact did not prevent its being nearly fatal.

There was another case of a young woman who developed a running sore upon the ball of her foot and bravely

and silently set out not to complain but to endure it. Of course, she gave up walking to and from school, but rode both ways in a street car. She was intelligent enough to take thorough antiseptic care of it twice daily, but she did not cure it. For want of sufficient outdoor exercise, she developed severe kidney trouble that finally made calling in a physician necessary. Under his treatment, the foot was soon cured; but the impairment of the kidneys, though checked in its development, was not curable. It is very shortsighted to neglect foot troubles.

As soon as one discovers a nail in a shoe making trouble for the foot, immediately get the shoe off. When this occurs upon the highway, get the shoe off, pack in a handkerchief or a card, and replace the shoe; but by all means stop the nail from making any more trouble. Many a case of blood-poisoning has started from a nail in the shoe or from a carpet tack upon the floor.

As one grows older, there is a marked tendency on the part of nails to curve inward and thereby to cut into the skin at the ends of the toes. Trimming the nails faithfully at least once a week after a bath helps. The way to deal with a nail that has grown in is to trim it and then to pack sterilized absorbent cotton under it, which should be removed daily. A bad case belongs to the family physician or to an expert chiropodist for relief.

THE CURE OF CORNS

Almost every corn is curable; and any toe once cured prefers to stay normal. Corns are produced by the persons to whose feet they are fastened. It is entirely unnecessary to have corns; but it is not always easy to get rid of them. Nor is it worth while to do so unless one intends to abate their cause, which is never anything else than shoes and hosiery that do not fit. Corns are unnatural.

But the patent corn relief plasters may produce serious trouble.

The procedure for the cure of corns that works in most cases is as follows, viz.—

First, get two pairs of shoes, not just alike, but each pair a perfect fit, as indicated above.

Second, trim the corns with sharp, curved, small scissors but do not trim to the point of bleeding.

Third, coat the pared corns over with liquid court plaster or some similar preparation thoroughly sterilized.

Fourth, wrap the offending toes in two thicknesses of soft, old, clean strips from handkerchiefs or other thin linen.

Fifth, wear soft slippers evenings.

Nine corns in ten will yield to such treatment within a fortnight; cease to grow; and never return. The tenth corn needs medical attention.

GOOD SHOES

Rubbers are very bad for the feet. Waterproof shoes are also bad. Patent leather, likewise. Really, it does no harm to have wet feet while walking; all the harm is from sitting around in wet shoes and hosiery. Of course, wetting the shoes is bad for the leather; and drying them off the feet is worse. Frankly, we wear rubbers, first, to save our shoes; and, second, to save time in changing into dry shoes and hosiery. Getting the feet wet and even cold does not harm one person in a thousand. Primitive man was born and bred to being wet from head to foot.

When rubbers are kept on the feet indoors, the shoes get wet from inside perspiration; and absolutely nothing is gained by wearing the rubbers at all. Both the leather of the shoes and the leather of the skin are damaged,

for the hot leather of the shoe blocks the free perspiration of the skin of the foot.

One great cause of foot troubles is wearing very heavy shoes indoors, where the thinnest of shoes are warm enough. Teachers should wear light shoes in their schoolrooms. The best purchase of shoes is always a thin or at least medium upper of sound leather with a medium sole. Many women make the mistake of getting shoes with medium uppers and thin soles. Experienced buyers,— that is, persons who know how to select good shoes,— understand how to estimate accurately the thickness and the quality of the sole of a shoe. There are very great differences in the qualities of the soles of shoes. Hygienically considered, leather makes the best sole. Even the sole of the foot has perspiratory glands.

The two serious objections to thin soles for outdoor wear are that they can be punctured too easily by tacks or by glass, which may severely cut the feet and that they are insufficient protection against roughness upon city sidewalks and pavements, freely permitting stone-bruises. That they let in the cold and the wet is a matter of no direct hygienic importance in itself; the human feet should be veritable stoves for heat. Unfortunately, most persons take walks and then sit around for hours and hours, though their feet may be both cold and wet, a condition that tends distinctly to body chills and to throat fevers.

The notion that exercising the feet and bathing them frequently makes them larger is physiologically absurd. Exercise and bathing tend directly to maintain the norm between feeble thinness and feeble fatness.

A strong, supple, muscular foot that has toes straight forward in walking is a mark of energy and character.

Some women, especially middle-aged women who desire to appear young, wear shoes with too high heels,

even two and a half inches high, which is beyond reason for any one. Not only so, but their high heels are made of solid steel, upon which the weight of the whole body pounds terrifically with every step. Nine persons in every ten should wear shoes with heels of live, new rubber not less than one-half and preferably a full inch thick. Such heels save many a jar to the spinal cord and brain; but it does require a modicum of intelligence to appreciate a proper heel of thick, good rubber. The one-eighth inch of rubber upon these faddish steel heels is an offence to common sense like some of the alleged "biscuit" crackers.

CHAPTER XXXIV

RELAXATION AND AMUSEMENT

IN a general and arbitrary manner, in respect to their relaxation and amusement, when distinct from play and exercise, we may divide teachers first into two classes and next into three subclasses of the second class. The first class consists of those who from intrinsic personal causes or from extrinsic environmental causes have and can have no amusements in the proper sense. When also they have no relaxation from endeavor and anxiety, they sicken and after a time, be it long or short,— it is always a time less than man's normal three score years and ten,— they die from want of amusement. When also they want relaxation, they sicken and die quickly. "All work and no play" does not "make Jack a dull boy"; rather it makes him an invalid and soon ends him. But with relaxation, even though it be not amusement, one may drag along perhaps for many years. By relaxation is meant rest, relief, release from positive pressure.

There was a case of a woman teacher, who for twenty years took personal care of an invalid mother who was so badly wrecked that the presence of the daughter for as many hours a day as possible was highly important; indeed, it was essential to the life of the old lady with whom no one else could get along. The result was that every holiday, summer and winter, and almost every evening was spent by the teacher with the mother. Perhaps, this was a case of excess in filial affection and piety; be this as it may, the problem of the physicians

who took care of both persons was how to keep the wage-earner well enough to do her work by which both were supported.

Nervous relaxation must be secured; and in this case it was secured to a considerable extent by some hours daily spent by the two in reading aloud and listening to light but fascinating novels, by housework, by short walks and trolley rides, by music from piano and phonograph and by infrequent visits to the motion picture shows, for though the mother was too blind to see the pictures, she did enjoy for a half hour or so the music when it happened to be good.

All that the case illustrates is that definite relaxation with as thorough forgetfulness of the environing world does help, for the whole record shows occasional, though but slight, breakdowns on the part of the teacher until there came a complete breakdown followed by change of occupation. The really astonishing thing about this case was the survival of the invalid mother into great old age, — a condition in itself that continually encouraged the daughter to longer endurance.

Mere relaxation includes such things as this, viz.—

1. Sitting in the teachers' rest room for a few minutes at recess or after school. (It is not, however, in any true sense, relaxation to engage in an animated conversation with other teachers or with pupils or with visitors when nominally trying to rest.)

2. Lying down there upon a couch, such as every schoolhouse should have,— even a one-room rural schoolhouse.

3. Reading at home books not upon themes connected with school work or with school life. Reading aloud to others is not relaxation for the reader.

4. Sitting in one's own room at home, reading material of no definite importance, such as most short stories.

5. Visiting most movies; some, however, are very exciting; and some are really informative and demand attention and consideration.

6. Knitting and mending. Dressmaking, however, is not relaxation, because it requires both thought and constant attention in all the processes.

7. Routine home cooking. But getting up dinners for friends is work or play, according to the manner in which one takes it. Neither work nor play is restful to the nervous system.

8. Taking a nap.

9. Going for a stroll at the rate of not over a mile in twenty minutes; nor walking up hills; nor going over half a mile then. Good walking is invigorating, not relaxing.

10. Taking a warm or neutral tub bath is distinctly restful to the weary. In some instances, however, even the weary do better to take either a shower bath or a slightly cool tub bath (90°). These instances usually concern the temporary weariness of persons with good heart action and with body coefficients exceeding 2.20.

11. Companionship of some kinds under some circumstances is relaxing. When persons sit in silence with but few remarks passing from one to another and are happy together but passive and quiescent, the right conditions exist for the relaxation of the weary ones among them; but in America such a group is unusual.

12. Solitude in the woods or in an attic or in a "den" may or may not be relaxing. When the solitude is quiet and silent, often it is restful.

AMUSEMENTS

Far greater is the variety of amusements than the variety of the modes of relaxation.

For convenience, the amusements open to the teacher

may be classified as primarily physical, primarily psychical, primarily social, and as mixed. The first group belong under exercise, where they have been previously considered. The secret of amusement is that it makes one forget the past and the surroundings and live in the present emotions.

It is a psychical amusement, not without physical benefits, however, to go to a good ball game (football, baseball, polo, hockey) and watch the contestants and perhaps join in cheering good plays and the winners; and the reason is because in the absorption and delight of the contest, one forgets his ordinary affairs and even oneself. When any man or woman reaches the point that he (or she) does not enjoy a horse race, there is something seriously the matter with both mind and health. Any sport becomes to the intelligent and healthy a spectacle or an amusement. When one reaches the point where one regards it so wicked to watch a horse race because perhaps some persons bet on the horses that mere delight in the animals themselves and in their drivers for their love of horses and skill in managing them is impossible, one has ceased to be normally human. On the same principle, however, one should stop eating bread because men gamble on the price of wheat and one should not buy books because both the writing and the printing of books are straight gambles,— nothing else more so. More horse races are won on the joint merits of horse and man than fames or properties are gathered in the business of life on the merits of the fame-strugglers and wealth-seekers.

Sometimes, a teacher denies himself an innocent pleasure because he imagines that the general public views his presence at a boxing match or at a boatrace as in some way improper; this is pure imagination. There is no such world here in America as that person pictures to himself who imagines general disapproval of a disposition

to enjoy being alive and seeing all normal life as it is. We are a happy people, and we delight in happy persons. The range of amusements and of pleasures open to the teacher who is himself decent is very wide and should be kept so.

Another psychical amusement is music itself,— piano playing, banjo playing, vocal singing, perhaps choral work, which, however, has also a social element. It is true that most teachers (unlike the generality of people) are visile rather than audile and live in sights, not sounds; still some teachers are both audiles and esthetes, and delight in music. That music tends both to quicken and to harmonize the soul every one knows from common observation. Teachers who play good music and who sing good songs are morally and physically the better for so doing; with the provisos that they have the surplus nervous energy for such effort, that they do not need sleep still more than amusement, and that they do not either fatigue their spinal systems or strain their voices.

HOME OCCUPATIONS

Still other amusements are carpentry and various technical sidelines for men and some few similar interests for women, such as bookbinding and handpainting,— china, water colors, etc.

It is by no means unwise for a teacher to have a workroom and a carpenter's bench; but it is unwise for him to work for others out of school hours on contract for pay. An interest of this kind should be kept uneconomic, non-financial, perfectly free from all social obligation.

Here are some cases.

A college professor cobbles all the family shoes; he has become an expert in driving pegs and in sewing on soles.

A school principal has built half the furniture in his own home; and very good furniture at that.

A school superintendent in a small city personally did more than half of all the work of building his own home; but the work was spread out over two full years. The house was not, however, assembled from ready cut materials. Instead of weakening him politically, his industry of early mornings and on holidays and in vacation times and his association with those who sold him materials and with the expert workmen whom he had to employ in some lines made him many friends. The outdoor work also improved his health.

A high school teacher took over a vacant plot 120'x 180' and raised more than enough vegetables and small fruits to feed his own family of five persons. He did it primarily for fun and health, not to save money.

A grammar grade man teacher raised fine dogs and trained them.

Another man kept in a small town a metal workshop in which for an hour or two every day he mended bicycles, sharpened skates, and in a small way dealt in second-hand tools and garden implements. He trained his boys incidentally and carefully avoided making any profit.

Provided that such outside interests are kept distinctly subordinate and are followed primarily for recreation, they are desirable and commendable.

But it must never be forgotten that when a teacher really tries large farming, it will soon be a case of a poor school or a poor farm.

CHAPTER XXXV

WHEN TO RESORT TO MEDICINE AND SURGERY

THERE are some rather familiar opinions among laymen and some standard sayings among medical men that turn upon the question whether in a particular physical trouble to use drugs or the knife; that is, whether to medicate or to operate. The extent of the field in which either method is at least occasionally applicable is very large.

There are diseases in which nursing, regimen and medicine do all that possibly can be done to correct or ameliorate or at least alleviate the trouble. Typhoid fever is an instance.

Again there are diseases in which only surgical operations are of any real service. Cancer is an instance.

But there are many diseases in which both medicine and surgery are indicated. Pyorrhea is an instance.

And there are some diseases in which in seeking help one may choose between medication and operation. Tonsilitis is such a disease, though, of course, no one should operate upon the tonsil, while inflamed, beyond perhaps lancing or cauterizing it.

This last is the field where the discussion occurs whether to operate or to medicate. In many localities, there is a tradition as old as folklore to the effect that a surgical operation is sure death. This is sometimes modified into the proposition that a surgical operation is a last resort — the bare chance to save an otherwise doomed

life. Such sayings as these are common in some neighborhoods,—"The hospitals are on the road to the cemetery." "When doctors don't know how to cure, they cut." "No one ever lives long after an operation; a year or two perhaps." "It was a successful operation, but as usual the patient died." When a physician advises even a strong man who has been reared in such ancient lore, the face of the patient blanches and his knees shake under him.

But among the younger men of the medical profession, and also among the abler, the situation is stated otherwise. "Better a quick cure with the knife than a slow cure with drugs." "With medicine only, the patient might live a few months; by an operation, he will get several years more of life." "Drugs kill more than scalpels kill."

And the young man of the modern medical school and hospital, taught as he has been by the veterans of great ability, has all the facts with him. In the past one hundred years the average length of life in America has increased by a dozen years; in this increase, surgery has played an important part. There are hundreds of thousands of men alive and at work now whom surgery saved promptly from near and certain death.

Another line of remarks includes such statements as these:—"Give medicine to old men and to all women but operate upon young men and all children." "Surgery for the rich; medicine for the poor." "After an operation, one's never the same; Nature never meant men to be cut up; if possible, cure with medicine."

Urban and rural teachers are quick to say such things as have been quoted when in their own cases surgery is advised rather than medicine and regimen. But the truth is that to say that any particular trouble is irremediable by the knife may be to say that no real cure is possible.

Tens of thousands of teachers are dragging along today

under handicaps that could be lifted immediately by surgery. In some instances, they do not know that their troubles can be promptly cured; but in many cases, they are afraid of surgery.

There was a case of a young woman, of twenty-three years; blonde, large, always ailing. Her family physician reported that she had tonsilitis several times a year. She was a wonderful swimmer and worked hard in school as the muscular motor do; she was indeed unhappy because of being so strong. She was nevertheless sickly. An examination showed an infected mouth and hypertrophied tonsils with a general state of subacute inflammation in her throat. No adenoids. She went to a hospital next day. Two days later, she was out. One week later, she was back at school. Six months later, she was a new woman; stronger, heavier, and happier. One year later, she was in a great city newspaper editorial office, successfully filling a position that required perfect health as well as natural force and poise, at a salary beyond her possible reach in ten years in any school system.

Another instance is more unusual. The man was past fifty years of age, a school principal, never married. He had severe kidney disease. Two surgical operations effected a radical change. In six months, he was back at work. In one year, he was married. Four years later, he was in a state of health and vigor such as he had not known since his youth. Surgery gave him a physical rebirth.

The world war has both revealed the wonders of modern surgery and also amazingly stimulated its progress and development. The new age will see in the fields of peace the larger fruits of these war-miracles of the field and base hospitals.

Among the diseases now in many instances immediately curable in their early stages by surgery without

medication are these, viz: — Catarrh; gallstones and calculi generally in liver, bladder and kidneys; appendicitis; eye-inflammations; and mastoiditis. Such are a few illustrations. Until modern surgery has spoken, it may be a serious mistake to imagine that some particular disease is incurable and irremediable.

An instance in point was that of a teacher whose face for years was disfigured by pimples and blotches. This skin trouble made her so unhappy that she would not frequent general society. But she found a specialist, a practitioner of the finest standing, who by surgical methods completely cured her in three months so that the disease never returned. Were this a medical work, the method might be presented here.

The high cost of surgery is often cited as a reason for avoiding it. But in truth generally the surgical operation costs much less than medical treatment more or less irregularly called in. The too thrifty need sometimes to be reminded that *not many surgical operations cost as much as a decent funeral and burial.* Of course, teachers are self-respecting and often do not like to explain that they have not fifteen or fifty or possibly a hundred dollars in cash on hand; perhaps, their disease has caused their poverty. But most physicians and surgeons are very kind to teachers in such circumstances. The general spirit of the profession is beautiful. Besides this, men who are good physicians and surgeons delight in curing the sick.

Ordinary persons do not enjoy telling about or listening to tales of physical woe; but the physician and the surgeon are extraordinary persons.

Sometimes, it takes moral courage to "go under the knife." Many operations are now performed under local anesthesia. Indeed, complete anesthesia under ether and chloroform is necessary only for radical and distinctly serious operations.

Finally, pain is the lot of woman; there is no pain worse than that of the woman in childbirth. Those who shrink from surgical operations might do well to remember that those who cannot face and endure pain are scarcely fit to live anyway. The grit to endure surgery is a fair certificate of sound human character.

No man knows where the triumphs of surgery will end. Modern science and art have at last availed to operate even upon the heart itself. Brain operations are common. The entire stomach may be taken away; or five feet of the bowel; and the recoveries may be perfect and permanent, greatly prolonging life and bringing happiness.

CHAPTER XXXVI

CHOICE OF HABITAT AND ARRANGEMENT OF HOME

IN the care of one's health, too often five closely associated environmental features are totally ignored because they are not even observed; and even when observed, very often they are pushed aside and neglected because they seem to be of no importance to the observer. These five features are,—

1. Choice of habitat.
2. Choice of location within this habitat.
3. Choice of home.
4. Arrangement within the home.
5. Arrangement of bedroom.

A mistake in any one of these five matters may lead to morbidity and even to death, as the facts of experience abundantly prove.

First, when one has any choice of position open, one should notice not merely the salaries but also the vital statistics connected with the various openings from which one may choose.

The records of the various registration areas of the United States through a long term of years shows that among all American cities St. Paul and Minneapolis, "the twin cities of the Northwest," stand very high in health, appearing to average only 10 deaths per thousand per year. This may be due in part to the Scandinavian stock in the neighborhood, which is famously long-lived; but the climates of Scandinavia and of the Northwest may have

quite as much to do with the long lives of the dwellers in "the twin cities" as the breeds of the men there. Even Scandinavians are not all of one breed; rather they are of three distinct breeds, all of them long-lived, though not equally so.

On the other side, there are cities with conspicuously bad records in respect to deaths and serious illnesses. Anyone may look them up in the census reports and even in the larger annual almanacs. In some of these cities, there are annual averages of as high as 35 and even 45 deaths per thousand.

When 1,000 people live continuously in a city with a death rate of 10 per annum, their average age at death is 50 years, while as a matter of theoretical statistics 10 survive to be 100 years old, 20 at least 99 years; 30, 98 years, etc. Any observer who takes the trouble to investigate the cities of the Northwest immediately notices the very large number of persons who have attained 70 and even 80 years of age.

But when 1,000 people live continuously in a city with a death rate of 20 per annum, their average age at death is but 25 years. Many American cities are content with this record. (It was 18 per 1,000 even in supposedly healthful New York, our greatest city, in 1918.) And in cities and towns with the very bad record of perhaps 40 per 1,000 per annum, the average age at death is but 12½ years.

Of course, practically, the situation is never like this in truth, for even in the worst cities some persons survive to be 70, 80, even 90 and occasionally 100 years of age. These, however, are the ones who warp the average up too high. Practically, what one finds, say, in a city of perhaps 100,000 people with a death rate of 18 per 1,000 is a set of statistics something like these, for a term of years, viz.—

Dying above 90 years of age	1
Dying from 80–89 years of age	15
" " 70–79 " " "	50
" " 60–69 " " "	100
" " 50–59 " " "	150
" " 40–49 " " "	150
" " 30–39 " " "	175
" " 20–29 " " "	200
" " 10–19 " " "	250
" " 1–9 " " "	300
" under 1 year of age	400
Total	1,791

Another city with perhaps the same death rate may have many more deaths under 50 years of age and many less therefore over 50 years of age. Probably, the former is a residential city of the North or Pacific Coast, while the latter may be an industrial city of the South or East.

This, however, is not quite so important as the definite inquiry into the deaths of teachers in service, where the records of some cities are very much worse than in other cities. Climate, general city sanitation, and special schoolhouse sanitation make very great differences.

The same differences are to be found in country districts. A village like a town or city may have a salubrious or a morbific site; it pays to find out before one accepts a position. Some cities lie in deep valleys between mountains. Some cities are typhoid centers. Some cities have heavy winter and spring rains. Some cities are surrounded by marshes. Some cities have strong, wet winds.

There is a fall line in Massachusetts forty-five miles back from the coast immediately below which, for months in spring and autumn every morning, there are long,

heavy fogs. The same is true of the city of Washington, and of many points for four hundred miles southward. Yet above this fall line upon the plateau, conditions are notably healthful.

Some cities have very heavy local rains. The same considerations apply to villages and to the countryside. Persons with weak eyes should keep away from the sun-lighted Southwest with its 3,500 hours of cloudless sky a year and seek the Northeast with its 2,250 hours or less.

Some cities have climates that develop many sore throats and similar ills, while other cities develop rheumatism. It is not true that "there are equal troubles everywhere; if it's not one thing, it's another." Of course, everywhere diseases end most lives; and everywhere men fall sick either from epidemic or self-originated diseases. But the truth is that some localities are astonishingly free of disease, while other localities are so especially cursed with disease that their very soils seem to be infected, and the disease-carriers among the population are dangerously numerous.

A COMPARISON OF DEATH RATES

An investigation of over 200 cemeteries showed extremely different results. In two cemeteries, side by side, belonging to two nearby churches, also side by side, the respective averages at death of all the numbers of the dead were 56 and 34 years of age. An investigation showed the causes.

1. The church with the better record had few drinkers of alcoholic stimulants.

2. It had a much higher per cent of well educated persons.

3. It had a much higher per cent of owners of business enterprises, of farms, etc.

4. It had a much higher per cent of adults to the whole population.

5. Its members came from a considerably greater variety of stocks and breeds.

6. They married later in life; and a smaller percentage of them married.

From these causes, it was easy to discover why the other church had a worse record in respect to the average age at death.

1. Its members, both men and women, were mostly "drinking persons,"— beer and tea were their favorite beverages. Also they were heavy eaters.

2. They were generally ignorant.

3. Mostly they were the wage-employes of others and had to obey clock, calendar, rules and orders, ailing or not, or lose their jobs.

4. They had large families of children,— and the death rates both of the children and of the mothers were very high.

5. Mostly they came of blond Saxon ancestry and were liable to the diseases characteristic of this stock, which is not hardy though it is vital and is in that sense healthy enough. It is not, however, even at its best vigorously resistant to disease like the Scotch and Welsh.

6. They married young and had large families early in life, setting up thereby home-conditions very trying to the parents.

Investigation also showed that the church with the higher death rate controlled the public school affairs, including the selection of teachers. Now some of these aspects of vital statistics would not affect the question whether or not a teacher should accept a position in the schools of this country village; but others would affect it. The prevalence of certain diseases such as pneumonia and typhoid in this village constituted a menace to health.

The general ignorance of hygiene and of sanitation made the work of the teachers much more difficult. Moreover, they were a hospitable and friendly folk, expecting others to join with them in eating and in drinking at their home meals, which were truly feasts of good things.

The particular site was a wind-swept plain with no forests or even woodlots anywhere near the roads that led to the central schoolhouse, a site objectionable in summer for want of cool shade and in winter for want of wind-breaks.

Such illustrations may be multiplied without adding anything but evidence by way of proof. It is one matter to teach in the cotton mill cities of eastern Massachusetts and a different matter to teach in the residential suburbs of Boston and a vastly different matter to teach in a Cape Cod village. Still greater extremes are offered by the schools of the Dakota plains or of the irrigation projects of the Rocky Mountain region.

It is a healthy and a wise instinct that prompts anyone to make inquiries as to the habitat itself before deciding to take a school there. Anyone who is free to seek a teaching position anywhere does well to find out the climate and other health characteristics of various localities. The variety of climates in America is truly incredible at first impression. Between the sections where the snow falls in the winters to depths of a dozen feet and where it stays on the ground more than five months and the sections about the Gulf of Mexico where the winters are short, mild and damp; and again between the sections where summer breezes and winter winds blow from the mountain tops to the sections of the Pacific Coast where the year is properly divided not into cold and hot but into wet and dry, there are very great differences that vitally concern the health of every one, including teachers, who must go out of doors daily in all weathers.

Neither geographies nor guidebooks are wholly trustworthy. The best information comes only from longtime residents who have no real estate to sell!

THE HOME LOCATION

Once that the habitat has been chosen or otherwise determined, the second question concerns location within the habitat. Usually, in every city and upon the countryside, some localities are much better than others. The question must be asked by any wise person rather from the point of view of health conditions than of social advantages.

There is one small city in this country with no less than five different sources of water supply, viz.—

1. Driven artesian deep wells that supply about one-fourth of the inhabitants.
2. A small brook that supplies about one-half of the city.
3. Cisterns taking rain water from the house-roofs.
4. Private artesian deep wells.
5. Springs in back lots and in cellars.

This city has a hillside location, and in over one-half of it, outside privies are still permitted.

The brook water in time of freshet runs mud. The whole stream at any time is wide open to infection.

In a certain city, the mouth of the main sewer, which discharges into a brook, is within a few hundred feet of a great factory surrounded by tenements.

In another city, there is a vast abattoir to the southeast from which upon certain winds come overpowering stenches. The southeastern quarter of the city is undesirable for residence by persons with sensitive olfactories, for these stenches sometimes induce in such persons nausea and other troubles.

Some cities lies partly upon hillsides and partly in valleys. There will be in such cities a variety of local climates. It makes a deal of difference whether one lives upon a northeast slope or not. Southern hill slopes are generally best for residence in the northern part of the United States.

When a city lies upon a plain, because most winds are westerly, by living upon the west side, one avoids the smoke of city factories, mills, stores and houses.

That on a great scale, the vast metropolitan population about New York harbor has materially changed the climate of the land eastward by heating and drying and filling the air with dust, smoke and gas for many miles eastward, no well informed person doubts. Both the rain gauge and the thermometer show this. So on a small scale, every city east of the Rocky Mountains affects to an extent the climate immediately to its eastward.

The first twenty-two cities of our country in area are all upon waterways,— ocean, bay, lake or great river. In general, anyone does well to avoid an all-the-year home upon or near a waterfront. The nuisance of mosquitoes and other insects makes it desirable to keep away also from ponds, swamps and other still water.

In the large cities, it is almost impossible to find quiet neighborhoods. The nights roar with elevated trains and trolley cars; and the early mornings rattle with milk wagons. Yet there are differences between localities. It is better to travel some miles and find a moderately quiet location rather than to lose sleep night and morning by living on a street near one's school. It is true that the pupils and parents dwell in the din, night and day, year in and year out; it is also true that many teachers seem "able to stand the ceaseless racket"; but noise both dulls the mental activities and robs the vital reserves, and

thereby night noise spoils one's efficiency as a day teacher and shortens one's life.

The rule then is this: — Wherever one is to teach, try to find the most healthful part of the place in which to live and, if possible, live there. To this, there is a natural corollary,— when one locality proves upon trial to be unhealthful, get out of it as soon as possible and into the best locality open to one's homemaking.

THE RESIDENCE ITSELF

The third feature of the environment connected with one's life is that of the choice of the house itself. Of course, in very large cities, there are no houses with grounds and trees; but elsewhere one often has a considerable range of choice.

Stone houses are warm in winter and usually cool in summer. Seldom, however, do they have verandas upon which in good weather one may sit of an evening and enjoy the air.

Brick houses are warm in winter, but generally they are damp both winter and summer.

Corner houses have more air circulation, but they are also noisier than inside houses.

In summer, it is delightful to have trees in the yard of a small city home; but except in arid sections, too many trees are worse than none at all because they release too much moisture and block the breezes.

A frame house with grounds about it, with some trees but not too many, inside the block and not upon the corner, set well back from the street, makes the best home generally for the teacher.

When one must seek lodgings and board, which is the lot of most teachers, some other inquiries are worth

making. The obvious ones concern the number of other inmates of the house, their times of rising and retiring and other social or antisocial habits, the children, if any, and the use of a general parlor and of other rooms.

Into some other matters also one should inquire when there is any choice of rooms.

More than one teacher has died from defective plumbing in a boarding house. How is one to tell positively? There is no available certain way; but the mere appearance of some bathrooms and kitchens is sufficient to warn the wary.

There was a case of severe and prolonged typhoid fever whose source was inscrutable until it happened that some plumbing gave way when it was found that a soil pipe joint had never been soldered and that this soil pipe joint was only a few feet from the head of the bed and directly below the clothes closet of the one person in the house who at that time contracted the disease. Investigation showed, however, that this particular bedroom had a history of high morbidity and mortality despite the fact that it had five windows upon a southeast corner. It is by no means to be supposed that the infections came directly from the gases of the soil pipe; but it is probable that these gases lowered the vital tone of the occupants of the room.

The safest plumbing is the exposed modern scientific plumbing. A bathroom tiled with enamelled fixtures connected with exposed nickel-plated plumbing should go a long way to offset any advantages whatever supposed to attach to any other boarding-house. Of course, the ideal way is for every teacher to have a private bathroom equipped in modern style. This costs money; but there are few other ways in which a teacher can spend money more advantageously.

One who is looking for lodgings should also ask about

the heating plant. Theoretically, hot air properly humidified is best; but practically from several causes, it is the worst. 1. Generally, it is not delivered at a proper point in the bedroom to keep it warm for afternoon and evening occupation. 2. Generally, it is not humidified but is as dry as the air of Arizona in August. 3. Practically, it is hot in mild weather and barely warm in cold weather. 4. Often, the air delivered into the room is not taken from outdoors, ten feet above the ground level, as it should be but from the cellar or even from some room in the house itself. Therefore, it is not clean, fresh air full of ozone but a bad mixture of dust, gases, damp and fumes.

Practically, steam and hot water are both good.

Theoretically and practically, the heat of gas stoves and open fires is worst because with it carbon monoxide is liberated, which is odorless but destructive of lung tissue, predisposing one to pneumonia, bronchitis and tuberculosis.

Also, it is worth while to inquire about barns, poultry houses, garages nearby and canary birds or parrots in the house.

There was a case of a teacher whose nervous breakdown and death were upon careful investigation directly attributed by competent observers to a large poultry yard full of all manner of fowls, some of them noisy from the first crack of dawn every morning. She could not sleep because of the din. And circumstances were such that she neither moved out nor protested against this invasion of her sleep.

CHOICE OF ROOM

When a teacher has any choice of room in a house, it is well to consider several of the factors involved. It is pleasant to have a large room, but more important to

have one in which the sun shines for a few hours every day. A first floor room may be elegantly furnished, but the second floor has better air. It is agreeable not to climb over one flight of stairs, but generally a third story room has still better air and is much more quiet at night.

It is convenient to have a room on the same floor with the general bathroom of a boarding house; but it is a noisy and at times a disagreeable association.

It may be a mark of social distinction to occupy the second story front room with an alcove, because this is popularly considered the best room in the house. Also, it is convenient of access for one's friends at afternoon tea or committee meetings. But the front of a city home is generally noisier than the rear, while the opposite is true of most rural homes.

Some rooms have hideous wall paper while others are attractive, even beautiful.

In choosing a room, these are the factors to balance, one against another, viz.—

1. Quiet vs. fashionableness.
2. Interior convenience vs. size.
3. Interior beauty vs. accessibility.
4. Sunlight vs. furniture.

The room that costs the highest per week is not invariably the best room in the house for a teacher. In ninety-nine cases out of a hundred, it is wiser to occupy a small room alone than a large room with one or two friends. And it is never wise for two teachers to occupy one double bed.

ARRANGING THE FURNITURE

The fifth feature is the interior arrangement of the room. A competent room arranger can do, it seems, almost anything with any room and transform a dreary box into an Eden. Of course, to complete such a transfor-

mation, the right wall paper, the right pictures, the right furniture, the right floor rugs are required; and other right things also, such as window shades and curtains, bureau toilet articles, bedspread, etc. But though some boarding house rooms with their equipment are really hopeless, most of them are largely redeemable.

The first desideratum is to get the bed where at night it can be so drawn out as to have fresh air on four sides. This is essential. Better still is a sleeping porch. One should not breathe for any time at all, night or day, his own breath reflected back from a wall.

The second requirement is as much open floor space as possible in a small room or as is desirable in a large room. In many American bedrooms, there is too much furniture; and improvement begins by removing a chair or a table.

The purpose of a bedroom is to make the occupant comfortable, to put him at his ease within its four walls. Some bedrooms make their occupants uncomfortable, fairly force them out, rasp their very souls. In a real home, such as not many teachers have, there are two rooms where their souls expand and rest,— the library and their own bedroom or suite of rooms.

The third desideratum in a bedroom is one comfortable chair properly placed for the light of day and for reading by whatever artificial light the room may have at night. One comfortable chair is quite as important as a proper bureau or indeed anything about the room save only the mattress and the springs upon the bed. Persons who are muscularly fatigued can sleep anywhere,— even in moving freight cars without straw for a bed. But teachers generally are nervously exhausted rather than muscularly fatigued; they are weary rather than tired; and they need easy springs and elastic mattresses. For winter, all wool blankets are less fatiguing than quilts.

Sometimes, a room may have pictures that are well enough but are so badly placed that they afford no pleasure. A few water colors, of course, originals hand-painted, add wonderfully to the bedroom. Next come photographs of the works of great artists.

Every teacher should have at least a few favorite books well bound; what books, will depend upon the tastes of the individual. One person freshens up as soon as he reaches his room because he sees there his own familiar, well beloved copy of Lowell's Poems but another prefers Bunyan's Pilgrim's Progress while a third desires always to see some new novel, soon to be discarded for a still newer one.

The one thing greatly to be desired is such an atmosphere in the room as to rest and release the weary and imprisoned spirit and to restore the adult man or woman from the world of children or of youth to the normal world of full-grown adults.

THE MOTIVES OF LIFE

These are the ideals, or to speak more strictly the standards, that should be definitely in the mind of the teacher who is trying to establish such a home as will serve to rest one after school and to send one forth to school joyously every morning. It is altogether normal to look forward with pleasure to getting home from school work.

Normal persons do not sleep at night, eat three meals a day, take a bath and a walk, and choose their attire in order that they may go to work at school or at anything else; but normal persons work for economic returns and the social good in order that they may have a home and friends and a whole life richly worthwhile twenty-four hours a day and every day in the year. The view that out of the workplace, one visits one's barracks, cleans up,

eats, sleeps, dresses and eats again in order to get back to the workplace proceeds from a misconception of the nature of personality. Very properly, we measure men by their homes, which should be fair representations of themselves.

The teacher of experience whose own home room is not attractive and restful never has a schoolroom that the children love; because one who does not know how to make oneself happy and easy never knows how to please the hearts of others.

Such are the standards respecting choice of habitat and arrangement of one's own home as a teacher. Could they all be attained, the teacher's would be the ideal life. Practically, one must forego even trying to meet all of these standards. There are but very few cities in America where it is reasonable to hope to attain even a majority of them. And teachers must teach wherever the children and youth are,— in the massed tenement districts of cities and by lonely stretches of seacoast and upon remote hillsides; — and the lodging-places of teachers must inevitably be much like the lodging-places of their children.

THE SCHOOLHOUSE

In this connection, there should be a note respecting the schoolhouse, the school room and the rest room of the teacher at school. Once that the appointment has been accepted, one teacher is almost powerless to secure betterment of conditions. Nevertheless, it is proper for every teacher to realize several truths.

First, school conditions do materially affect both the health and the happiness of the teacher who in his own interest should do what he can to make them better. Sitting down submissively and accepting slavishly whatever conditions a school affords constitute not loyalty to supe-

rior authority but both disloyalty to children and youth at school and also disregard of one's own moral rights to decent conditions according to the standards of this modern civilized nation.

Second, often what one teacher cannot do, an organized group either of teachers alone or of teachers and parents can through a period of time, by definite plan and endeavor, at last accomplish. Team work of the character indicated is not insubordination to superior authority or wild radicalism but sheer self-defense or at most the keeping of faith with the best principles of this nation.

For America has set her goal and is bravely and successfully working towards it,— a goal of long and happy lives for all men, lit by the high and resplendent stars of justice, brotherly kindness, duty to the right and beauty. Therefore, both the home and the workshop of the teacher should be creditable to the person himself and to the neighborhood where he works and lives,— creditable according to the standards of the best men and women there. To win such schoolhouses and such homes,— sanitary, fireproof, commodious, panicproof, and beautiful,— involves the will to have them on the part alike of the effective minority who control society great and small everywhere and of the teachers themselves. But until we as teachers desire good homes and good schoolhouses, we shall never have them, for they will not be given to us. When built at all, they will be given only to those who have aspired to them and who have struggled to win them from a busy world.

The teacher who proceeds consciously or unconsciously upon the assumption that any accommodations in the way of lodging-place and meals will do well enough because he " isn't going to teach very long " and who therefore stands for almost any degradation of surroundings and poverty of conditions as to his own home is making two serious

mistakes, one personal, the other social. The personal mistake is that he is accustoming himself to endure bad conditions and is thereby lowering his own standards for life. The social mistake is that he is allowing the world to imagine that almost anything is good enough for the teacher and that school is an affair anyway beneath the serious consideration of real men and women.

Finally, in respect to one's own home, when the lodging-house is also the scene where the meals are secured, the inquiring teacher should investigate and consider everything important relating to the food-supply; and if things are done contrary to modern scientific knowledge, should either not live at this particular house or secure reform of it.

There was a case where in a boarding house saucers, cups, knives, forks and spoons were washed in lukewarm water right at the table and served immediately to the next comers to the meals. This boarding house was the scene of a serious outbreak of typhoid fever one summer. Teachers should never tolerate such procedures, for living as we do public lives, even our toleration sets the example to others. To mind high things enough to support them, and when need is, to struggle for them, is part of the very profession of the teacher. Nor does it detract one iota from the truly ethical nature of such conduct that we benefit ourselves thereby as well as the public. To protect our own health and lives is in a serious sense a duty that we owe to those others, who by providing us with buildings and books and apparatus and salaries enable us to perform our functions of standing for truth, justice and beauty and of educating youth accordingly.

CHAPTER XXXVII

WHAT IS WORRY?

THE person who never worries save when he is scientifically or sympathetically interested in others, poohpoohs worry, and so far as he ever notices it perhaps wonders what for a moment the worry is about and stops right there.

The person who worries all the time about anything, everything or nothing never considers what worry is and cannot be cured or even helped. But the person who worries only at times and then only about some matters is curable and worth curing.

Bismarck was once asked regarding the first Kaiser Wilhelm I, with whom no one else could get along, how he managed to keep on good terms with his imperial master.

"Oh," he answered, offhand, "I take him as I do the weather!"

It is a good story; but some persons persist in worrying about even the weather!

What is to be said hereafter about worrying and worries and worriers is of possible interest only to those who worry part of the time about some matters but who do not worry all the time about something or other or about nothing at all. The person who never worries and who does not care whether others worry or not is seldom highly intelligent, but he is spared a deal of trouble. It takes trouble to develop intelligence to know that there is trouble. Some worry is almost inevitable to the man of intelligence.

But the person who is an habitual worrier is on the down grade; both mind and body must suffer and deteriorate. The worry by its ceaseless pressure shuts off the gates of relief in play and endeavor and in reconciliation to fate.

What, then, is worry? Essentially, it is an inner but not yet consciously admitted inadequacy to the problems and tasks that confront one. Worry is a pressure to attack something beyond one's powers to conquer; and it is unwillingness to give up and to admit defeat. Worry is the sense of inner weakness, but it is not the lowest and the worst form of such a sense of weakness.

There are persons whose physical and moral courage and fortitude are so low that they refuse even to face difficulties. They either sit down obstinately where they are or else retreat. These are the cowards; they never worry. They do not even care whether others worry about them or not. They will not hold conversations with persons who are disagreeable to themselves. They even decline to open letters from those whom they dislike or whom they suspect of being critical and unfriendly. Such persons cross to the other side of the street rather than so much as pass the place of business of "an enemy." As school teachers, they live more or less like hermits. All this is due to the sense of inner insufficiency to meet adequately what life presents to them.

The sense of inner weakness that causes worry is a somewhat different and a distinctly higher aspect of mind and character. It faces but fears danger; it faces forward and waits for things to happen from others, and frets because it feels unable to prevent them.

This, however, is not the whole nature of worry. In psychological terms, worry is the persistence in consciousness of what one desires out of consciousness. The man who worries cannot forget, which means "lay aside."

He cannot frustrate memory, but is the victim of his recalled images. To be unable to rid oneself of persisting ideas is not always unfortunate; it depends mainly upon what the ideas are. To be full of some ideas is to be fortunate. Genius is nothing but knowing and surrendering to the great worthwhile ideas. A man of genius to an extent always worries until he wins; but the world does not complain about the worries of such a man,— at least not because they are worries.

In the ordinary sense, however, of the term, that is, according to common sense,— worry is excessive consideration of ideas not worthwhile. This appears when one inventories the subjects about which teachers worry.

Frequently, teachers worry about the way their children behave and do their work at school. In some cases, tired teachers dream that their children misbehave so badly that they lose their positions or that they perform so poorly in examinations as to cause visitors to condemn or ridicule themselves. Such dreams show that work and worry are bringing the dreamers into serious ill-health.

Another field in which grow many of the weeds of worry of teachers is that of their relations with their superior officers,— superintendents, board members, etc., and with parents. These worries concern many matters such as

1. Visits, conferences and meetings.
2. Tenure and salaries.
3. Complaints of parents.
4. Incorrigible children.
5. Rules, orders and directions from superiors.
6. Reports to superiors.
7. Personal relations and associations.

These are such as are inseparably connected with every style of employment; they or their like are to be found in factories, in stores, even in churches. They are not

wholly to be escaped even in homes and families and among kindred.

ABSENCE OF SELF-ALIENATION

Why then do teachers suffer more than any other persons from these worries of social relationships? They think they do; but it is largely imagination, due to the misunderstanding of a situation resultant from absence of self-alienation in teachers, for self-alienation is upon a psychological plane higher than most teachers have attained. And some of those who worry are worrying solely because they cannot see themselves as others see them,— they cannot become detached from themselves and stand off and look at themselves as objects in the social scene. It is utterly useless to try to explain self-effacement, self-alienation, social detachment, aloofness from oneself to those who have not yet experienced this.

No self-detached person is capable of the many severe worries of the self-absorbed persons. Indeed, it appears that the direct thinking out of oneself into the lives of others is itself both the solution of worries and the means of freedom for all future worries.

There are a thousand anecdotes to illustrate the many values of troubles once solved as prophylactics against future worries regarding trouble. The real veteran in life has learned not to worry and how not to worry. Whether this lesson can be taught to others by a veteran in the experiences of life is somewhat doubtful. To be able to learn from the experiences of others is to possess a rare and precious gift.

SOME CASES OF WORRY

Perhaps a few of these many anecdotes may help some one who worries.

She was an earnest member of her church but very unhappy because she was discontented and aware of being discontented. She went to her pastor and told him about her great trouble in that not even her religion gave her a contented mind. She made several calls upon him without relief. Then for a month or more, she refrained from laying her burden upon his soul. At length, he met her on the street, and stopping her, asked how she was getting on with her unhappy trouble of not having a contented mind. Her answer was this,—"Well, I just decided that I'd be content not to have a contented mind!"

Another story illustrates how differently we assess the values and troubles of life. The two young men of business were good friends. One morning, Charles went to Edward and said he had a note of $200 that he could not meet and that if he did not meet it, the note would go to protest, which might force him into insolvency.

Edward replied,—"That is certainly too bad. I don't see how very well I could let you have the money, but if you cannot raise it by two o'clock, I'll try to get the $200 for you before the bank closes."

At two o'clock, Charles came around and said that he could not raise the money; he had tried in every quarter. Would his friend save him from disgrace and perhaps ruin?

"I'll be at the bank at 2:45 P. M. with the money. I'd do almost anything for you, my friend."

And so before the bank closed that afternoon, Charles took up the loan for his dear friend Edward. As they left the bank, Edward seized his benefactor's hand and wrung it effusively, saying,—

"Why, man, if you hadn't let me have that $200, do you know that my wife would have had to draw the money from her own savings bank account? Just think of it!"

And Edward answered sadly, "So? That would have been too bad for your wife, I'm sure. I got the money by pawning my wife's jewelry. Goodbye!"

THOUGHT AND ENDEAVOR

1. Hard thinking is not worry. In some instances, deliberate, persistent, intense thinking solves the problem that causes the worry. Why not set to and think?

2. In some instances, seriously considered, the worry is about something of no real and vital importance. Seriously considered, there are not over half a dozen topics worth worrying about; these serious topics concern life and death directly and indirectly, sin and remorse, debt beyond reasonable probability of payment and such matters. Why worry about trivialities?

3. In other instances, the worry concerns something that one is powerless to change. Man is not captain of his own fate; and he becomes captain of his own soul partly by renouncing the ambition to master all circumstances.

Emerson wrote,—

> "So near is grandeur to our dust,
> So nigh is God to man,
> When duty whispers low, 'Thou must!'
> The youth replies, 'I can!'"

And swallowing the exhortation whole, gulping it down *en bloc,* many a person makes himself sick, tackling jobs and confronting situations that no one person can deal with successfully.

Some foolish person once said, "In the bright lexicon of youth, there is no such word as 'fail.'" But it is the puppy who sticks to the root, not the grown dog. Jesus

was far wiser and often said that no man is responsible for more than his power to perform; is not this part of the meaning of the parable of the talents?

Pedants and pedagogues, doctrinaires and their ilk often lay burdens upon others that they will not lift their own hands to ease for others. All "executives" and "leaders," including "educationalists" and "reformers," college presidents and school superintendents are liable to the temptation of asking their official subordinates (who may nevertheless be their intellectual and moral superiors) to do things quite beyond common sense.

Why worry over the impossible?

There was the case of a young woman to whom was given, the first year out of normal school, in a city a class of over ninety children in a makeshift room without ventilation. She knew that the burden was too great to be borne; but she feared to resign lest she could not get another position and might become a burden upon her poor old parents for some months. The superintendent of schools and board of education refused to do anything to relieve her,— they said that she would have to stand it.

She stood it for eight months and died. Her poor parents had to pay the costs of her burial. The city school superintendent had to resign, such was the public indignation when the facts came out, for that board had a cash balance of over $5,000. at the end of the very year when they alleged that they "could not do anything."

Why keep on trying to brave out the intolerable? When they tell you that others defeat the invincible, don't you believe it. That is all well enough in war against barbarians; but it is no rule for peaceful, civilized, social life.

4. Because worry is in part the sense of insufficiency to a task or problem, in some instances the true solution

is to strengthen oneself physically in order to endure. Mere willing to endure is itself wearing to anyone.

There was a case of a young woman teacher who had been given a terribly hard task,— governing fifty-five children with a wretched man teacher in the next room (it was a thinly built, poorly heated 2-room schoolhouse). He was in charge of twenty older children who were always in disorder. She talked the case over with her father,— the village postmaster in the town next to her school district; — and they decided what was the thing to do. She bought a horse good for both riding and driving; and every day either drove or rode six miles to her school and back, and she took care of the horse herself. Her father and mother conspired to make her home a sanitarium; they had her in bed every night before a school day not later than eight-thirty. As the result, in three years, she had actually gained in weight and strength despite her school environment. This young lady had a Scotch father and a Dutch mother; perhaps heredity accounts for their wise course as a family.

The public saw the struggle and the victory; and this woman, no longer very young, is now recognized as the best teacher in a considerable town.

A thorough, continuous study of one's own needs and reactions may show one what to do in order to become strong enough to overcome some difficulties,— but not all, by no means all of them.

Beware of all flatterers, whether they speak with human voices or are but echoes from stimulants or narcotics. Learn what not to undertake. Then having undertaken, learn what to do in order to be strong and enduring enough to insure success. Do not send good money after bad; try to get new business. Some boys are incorrigible; some children are feeble-minded. Try them out and having tried, follow your decisions. Some school officers are

impossible. Having experienced their incompetence or cruelty, quit them. In truth, depart, shaking off the dust of your shoes as witness against them.

5. We may strengthen ourselves by such physical methods as are outlined here or by various psychical methods, some of which have already been suggested, while others may be added. It pays to read biography and to discover what men can and what they cannot endure. Though it is not true that "what men have borne, men may bear" in the sense that all things are endurable by any man with the requisite bravery and fortitude, it still is true that sometimes we are stronger than we know or even dare to hope. In the general course of events, the troubles that we anticipate will probably not be the ones that in real experience will ever bear upon us heavily. Moreover, often there comes help from an unimagined quarter. "While there's life, there's hope" is a good slogan,— not wholly true,— and yet in some instances apparently true as by miracle. No one has yet fathomed the mystery of life; no one has yet ever read even so much as one day of the future.

Any person who has lived long knows well that the survivors of life's warfare, the victors in earth's battles, the winners in the human arena are not mostly those to whom success seemed likely. Many an invalid outlives the athletes of his youth. Many a poor man becomes rich, and many a rich man becomes poor. There are some persons fully matured at twenty years of age; they never grow wiser or stronger. And there are some who change more in essential character and ability from twenty to forty years of age than they did from ten to twenty. Even in still later decades, here and there are men and women growing and improving in essential qualities.

There was a teacher who went back to his twentieth college class reunion; he had been the class valedictorian;

he walked in among a score of his classmates, and not one recognized him or could guess who he was. Yet in that score were some whose class photographs taken at twenty years of age would have served admirably for them at forty years of age. Sometimes, trouble and endeavor enlarge and quicken a man or woman, it seems, almost "overnight." It is unwise immediately upon being confronted with what seems unbearable or impossible to surrender or retreat.

6. Most nearly hopeless are those who insist upon lamenting the past.

The last minute is as dead as that minute when Brutus slew Caesar or that still earlier minute when Esau sold his birthright to Jacob for a mess of pottage. And it is as idle for one to regret what has just happened as what happened ten years before. The worriers are always lamenting lost and past opportunities; and every lament but adds to the golden moments that have been lost. The same man who worries about what is going to happen or what may happen is the very man who worries about what did happen and torments himself because he did not prevent its happening. In psychological terms, this means that his life is a mere thread and that his interests are few and confined narrowly to himself. To such as this man who worries over the past and the future come these important sayings, viz.—

"Now is the accepted time; now is the day of salvation."

"Let the dead bury their own dead."

"To him that overcometh, I shall be his God, and he shall be My son."

If possible, get out of this swift and narrow stream of emotional life. Forget yourself when you go to bed and remember that now is the time to sleep.

LAYING CARE ASIDE

That was a very good teacher who said,—"When I leave my school and turn my back upon the door, I forget it until next morning when I leave my home and go back to my school again." This is not to be taken too literally. It is not always possible to clean up one's desk and to leave all one's work ready for the next day at the hour when the janitor is waiting to lock the schoolhouse door. Indeed, it is really better to leave the school when the children do and go out for rest and play, even if one must do an hour's work in the evening, than to linger wearily at the school. After school work often means work done slowly and with many mistakes. Nevertheless, the principle implied in the remark is correct,—"Work hard, play freely, and rest in total obliviousness to one's usual tasks." That platform orator never really does very well who cannot get his speech off his mind either before or after getting it up out of his throat. And that teacher soon wears out who thinks ceaselessly about his teaching both before and after giving the lesson. A painter may work upon a picture for an hour too long; and the painter who gets to thinking a deal about the pictures that he has painted already will soon cease to paint any more pictures.

Any one who thinks much about the past or who worries about the contingent future, instead of thinking hard about the immediate future,—the next few minutes, the next few days,—is in danger of being classified by others as either anemic or senescent. Theodore Roosevelt once replied to a request for an engagement a year ahead that he never tied up his time or bound his mind to anything so remote as a year ahead. This is by no means a universally wise rule, but it serves for practical purposes as a safeguard against worry about what may never happen.

The old finish too often their life careers in vain hopes to get back into the game once more or in equally vain reminiscences. The truly young, whatever their years, work, and do not worry about the work itself or the results. They follow truth and principle wherever these lead; perhaps, blindly but very often with great success.

This is the psychological aspect of worry, which is none the less essentially a physiological process. Once that one begins to analyze worry as a process in the twofold nature of man as body and as mind, one has already begun to defeat worry.

Worry is the admission of incompetence silently to oneself.

Worry is physical deterioration.

Worry is moral cowardice.

Worry is obsession by ideas.

Worry is victimization either by imagination or by memory.

Worry is fear of the future, which may never come.

Worry is evidence of self-absorption.

Worry is unwillingness to seek to accomplish ends by sufficient means.

Worry is the road to invalidism and to senility.

Worry is the enemy of work and the negation of faith.

Finally, when one worries about one's health, why not remember that for immediate purposes of accomplishment, it is far better to be a strong, sick man than a weak, well one; and that when a strong, sick man actually does kill himself with work, he never has to worry at all.

CHAPTER XXXVIII

WINNING OLD AGE: SUMMARY

THE woman school superintendent of the Far West county who rides east an dwest more than one hundred miles within her own educational jurisdiction, making ten, fifteen, twenty miles a day on horseback, suffers from some inconveniences to health not even imagined by the woman city school principal. She may become ill when many miles away from any ranch, alone upon the plains or in the mountains. She may not have a good bed one night in five upon which to sleep. She has the fear often of personal danger. When away from the county seat on school visitation, she has no control of her diet but must eat what is set before her or go hungry. Only those who have travelled in lonely lands can imagine the routine of discomforts such a school officer must endure. It is a case of preferring health to the preservation of the social rules summarized for women under the term "modesty," which preference requires moral valor.

The contrast is that of isolation versus crowding.

There was a woman city primary school supervisor. Her second predecessor back in that position had died of overwork bringing on insomnia and insanity. Her immediate predecessor had died of neurasthenia, after but six years of experience. The friends of this woman urged her not to take the position; but for several reasons, she allowed her ambition to overcome her own better judgment. These were that she had a family of high social position and believed that with their help she could

overcome some of the hitherto insuperable obstacles to success as primary supervisor; that the salary was much higher than what she was then receiving; and that she really believed the schools needed service of the kind within her power to render.

Six years later, she had made herself nationally famous for her genuine success, and she was greatly beloved by most of the teachers under her guidance. But she was ill in a sanitarium from work and worry. The need of money had nothing to do with the case; her income was three times her salary; and she lived at home at no expense.

There were no physical peculiarities, calculated to lead to such a breakdown; this woman was about fifty years of age, of the familiar Anglo-Saxon type, with a combination of two sometimes irreconcilable traits, amiability and eager energy. Her body coefficient was 2.2, which is standard.

Once in the position, the same pressures fell upon her as upon her predecessors. Some teachers were "pulling" for promotion. Other teachers were shirking that they might enjoy the very active evening social life of their city. There were always many vacancies to be filled, for the salaries of the teachers were low in this city, and the primary supervisor was forever training substitutes. The city normal school duties, attached to the position, filled in every apparently spare minute of her time. And the whole city system upon its pedagogical side swung about this woman as its first focus to get the children started. She made the programs, the courses of study, the rules for more than a thousand teachers. Under the rules of the city, the primary supervisor was the effective pedagogical superintendent.

This primary city supervisor could no more avert the force of those rules than the Far West county school

superintendent could turn aside the cold winds of winter that made her grateful for having a warm horse under her as she rode in the morning twilight. Therefore, after a year of life in the sanitarium, relieved a little by a trip with a nurse to Europe, she died, just as her predecessors had died, not of any real disease but of her "job."

Had she shirked herself, she would have been removed by superior authorities. Had she been less amiable and obliging, she would have lost social favor and have been quietly pressed to resign. Perhaps, some person will yet be found for this position who has "iron health" and who will survive in it for twenty or thirty years; but it is improbable.

There was a case of a rural teacher whose isolated schoolhouse was upon a bare plain. In that state, eleven (11) per cent. of all the schoolhouses had no provisions for the toilet; some of these schoolhouses, however, were in the woods or near farmhouses. This woman, being unable to take proper care of her bodily needs for eight hours daily,—8:30 A. M. to 4:30 P. M.—developed diseases and died from them.

THE COMPLETED ROUND OF LIFE

Women teachers who intend to live out normal lives, who propose to die at seventy, not at twenty-five or even at fifty years, must bring themselves to face the present and the future in the light of the experiences of others. Consider completed lives. Consider the birth, development, maturity and end of one and another of the persons whom you have known and who have played their last cards.

In most cases, success has been a function of intelligence, industry and character, not merely of industry and character. In most cases, failure has been a func-

tion of ignorance, laziness and characterlessness; and ignorance, unwillingness to face the facts of a definite situation, over-confidence in being able to succeed where others have failed, has played an important part in the failure. This ignorance has been usually ignorance as to health; most of the failures of life have proven that in civilization one must learn from others how to live physically. The instincts alone will not show a man the way to health and strength in modern life, whether on the prairie, in the swamps, in the mountains, in villages, or towns, or cities. Not even when reinforced by the social traditions of family life and of the other groups that surround childhood are the instincts trustworthy guides. That notion is one of the exploded theories of human history.

One of the baseless notions afflicting young teachers is this,— that success as a student in school indicates an adequate hygienic preparation for success as a teacher in school. Truth is that the work on one side of the teacher's desk differs radically from work on the other side.

Another baseless idea is that the teacher who has gotten along well enough in young manhood or womanhood perhaps for several years in a small town school can change to a city school in a different climate and at a later period of physical development and prosper physically using the same regimen of life. The demands of the city upon health are very different from the demands of the village. With every added year to one's age, with every increase in duties that draw upon one's vitality, the one hope of continued health is a perpetually changing and improving hygienic regimen. Cut-and-dried rules will not suffice. Eternal vigilance is the price of health at least for all persons of mature years,— their one way to reach hale and hearty old age, which is the crown of life and the glory of civilization. The laws of nature are not held in abeyance in respect to health; nor is it true

that one who loses his physical life in service will save it.

There are some very conscientious persons who completely misconceive certain teachings styled by themselves Christian to the effect that good men and women can work indefinitely hard and yet stay well and live long. The Teacher whom they profess to quote and to imitate took both holidays and vacations frequently. There is not the slightest warrant from the record of His life of any act by Him for any zealots to impose upon American men and women teachers the physical regimen of ascetic monks in the Arabian desert. There are such zealots in our public and private schools and colleges who for themselves neglect the modern principles of personal and social hygiene and who teach others so both by example and by precept.

There was a case of a city school superintendent not many years ago who in a public document sent to all his teachers denounced what he styled "coddling health" in the cases both of teachers and of pupils as a "serious public evil." The contrary is the truth. Care of the health of teachers as the condition precedent to the care of the health of all the people is an invaluable public good.

There was a case of a man who spent many years of his life in teaching and the rest of it in preaching and in private tutoring. He lived to be ninety-seven years of age, and when past ninety years, occasionally occupied the pulpit of a large church acceptably. Up to ninety-five years of age, he continued to be a diligent student of Latin and of history. At eighty-eight years of age, he was run over by a train, losing a leg and suffering other injuries. At several times in his life, he had to pass through serious troubles, yet he maintained his health notwithstanding.

This was no mere case of exceptional vitality by inheri-

tance. He won and kept this health. He was physically stronger at fifty years of age than at twenty; and at seventy he was a man of extraordinary daily efficiency in work. Until he was eighty, no one thought of him as old and getting ready to step off scene. How did he gain and keep his health? Very much in the ways described in this book. Even at ninety years of age, he took daily one-half hour of exercise with dumb-bells; and though minus one leg, he stumped about in the open air not less than one hour every day, rain or shine or snow, indifferent to the storms even of winter. He gave time and thought to being well and strong. His largest accomplishment in life was at an age much later than most men and women die. In consequence of his long life, he was able to render to the world all the service that was really in him. He used to say that what success he had was due to his intention to live out the whole of his possible life until old age should defeat him.

Perhaps American school teachers will be able to render a far greater service to this nation when we have all learned not to take our cue from such as live the characteristically short life of most teachers but from the men and women who have met and overmatched the real difficulties of teaching by obeying the principles of a rational and self-controlled personal health regimen.

The founder of all modern science was Aristotle, the Greek teacher. What he said in effect for personal hygiene then is as true now as it was two thousand years ago,— that the way to health is by endurance, fortitude, deliberation, moral choice and ample thought as to the means for reaching ends. He censured as barbarian mere desire for any end, even for health, saying truly that the civilized are known by their profound concern as to the means for attaining their ends.

The purpose of this book at every point throughout has been to suggest the means for winning and keeping health and strength, which are the physical sources of abundant life. Not only the teacher's own success but the progress and further development of the educational system depends upon every teacher having a health-intelligence and a health-conscience such as will promote their happiness and good cheer in the daily work. Youth should be in the care of those whose lives are a pleasure to themselves; obviously joyous; never fretful; and delighting in opportunities to do more and more for young people. A healthy teacher is a daily inspiration to the pupils; and a helpful memory for all later years.

More than one school staff and more than one college faculty might profit by taking as its line of march for a year,—"Quit you like men and be strong."

The United States Bureau of Education has promulgated a new motto for students and teachers alike; let us follow it one and all,—

HEALTH STRENGTH JOY

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